

HOME INVESTMENTS.

TRAMWAYS.

THERE is no abatement in the popularity with which these essentially home investments are regarded, and it is a noticeable fact, which cannot be gainsaid, that the values of the various tramway properties are maintained with remarkable steadiness. This is not surprising when it is remembered that the present prices include six months' accrued dividend. It cannot be too forcibly pointed out to the intending investors in tramways that this class of security is free from those surprises to which, for instance, shareholders in railways are subject. At the present time, when more than usual attention is likely to be directed to tramway securities as a sound and progressive home investment, it may be instructive to point out what have been the results to those associated with the leading companies from their formation, and from a study of the various registers of shareholders, it is surprising to notice how large a number of the original subscribers still remain upon the lists. The following table will show how this steady faith has been rewarded:—

Name of company.	No. of shares.	Amount per share.	Original capital.	Price, Dec. 31, 1877.	Present capital value.
Dublin	24,000	£10	£ 240,000	17½	£ 420,000
Edinburgh	14,000	10	140,000	18½	259,385
Glasgow	35,000	9	315,000	12	420,000
Hull	6,000	10	60,000	13½	82,500
Liverpool	34,000	10	340,000	12½	425,000
London	25,000	10	250,000	12½	306,250
London Street	12,500	10	125,000	13	162,500
North Metropolitan	6,000	10	60,000	17½	1,050,000
			£2,076,000		£3,108,635

The above figures speak for themselves. They show that an investment of £2,076,000 of capital at home (or less than either of the last two loans to Honduras and Costa Rica, and about 1-18th part of the money entrusted to the tender mercies of the Peruvian Government has, in a few years, under the protection of English laws, produced a profit of 49½ per cent. upon the capital, in addition to a good dividend yield; while those who placed faith in miserable foreign Republics have lost no less a sum in the three loans above mentioned than £3,729,500. The radius of tramway shareholders is, I am glad to say, steadily and surely widening, and it is evident that small capitalists who have hitherto held aloof are at last realising the merits of these securities. To anyone having (say) £1000 to employ in the development of tramways, I would recommend a selection from the following:—Anglo-Argentine, Hull, Belfast, Provincial, Swansea, Tramway Union, Wolverhampton, and Tramway and General Works Company.

STEAM ON TRAMWAYS.

The New Year is likely to be memorable by the introduction of steam-power upon several, if not all, the tramways in the United Kingdom. The effect of this change upon the profits of the established companies is, of course, a matter of conjecture, but I have formed my own calculations, and I am perfectly satisfied as to the benefits to be anticipated. It is especially interesting at the present time to look back a little, and record the wisdom and foresightedness which existed seven years ago, when an important act was passed, entitled "The Tramways (Ireland) Act of 1860, 23 and 24 Vict., cap. 152,"—"to facilitate internal communication in Ireland by means of tramroads or tramways (28 August, 1860)," and from which the following is extracted:—

"Whereas it would be of great public and local advantage if powers were given to persons desirous to promote the construction of tramways in Ireland, to make use for that purpose, under proper control, of public roads, post roads, and common highways, where the same can be done without injury to public interests, and to purchase and hold such lands contiguous to such roads and highways, or agreed to be sold by the owners, as shall be found useful and necessary for the completion of such undertakings, and to use such tramways for the conveyance of passengers, produce, minerals, merchandise, and other goods, in carriages, wagons, and trucks moved by animal power.

Subsequent to the passing of this Act the allotments offered to the small capitalists to invest in foreign stocks were so fascinating that an important Act, giving special facilities for the employment of capital in Ireland, was utterly disregarded. In order, however, to divert the stream of capital to an integral portion of the empire of Great Britain, with a view of opening up the rich resources of Ireland, another Act was obtained by Lord Cairns. On the 21st August, 1871, it was enacted:—

"To amend the Tramways (Ireland) Acts of 1860 and 1861, that notwithstanding anything contained in the Tramways (Ireland) Act of 1860, the grand jury of any county may approve of any application for authority to make and maintain a tramway to be worked by a locomotive engine or engines on rails or otherwise, and the Lord Lieutenant may make an order in Council, authorising the making and maintaining such tramway, subject to such conditions and restrictions as the grand jury or the Lord Lieutenant respectively may think fit to make with respect to the speed at which any train upon such tramway should be moved, &c.

These two valuable Acts, strange to say, have been allowed to remain a dead letter until unearthed by the "Steam Tramways Company of Ireland." They are now, however, about to be utilised under such powerful auspices that great benefits will be assured to the travelling and trading community of Ireland, while, if a fair estimate can be formed from previous experience, the capitalists who are fortunate enough to be associated with the undertaking in its early stage will reap a rich reward for their enterprise. At one time Irish investments were not popular, but there is happily now a decided change of feeling, and no more conspicuous instance of this can be given than the demand which has sprung up for the various Irish Railway Securities to which I called attention some time since; the advance in values in every instance but one (the marked exception being the Dublin, Wicklow, and Wexford) ranging from 10 to 40 per cent. In recommending the introduction of English capital into Ireland with a view to securing profitable results, I freely admit that I cannot urge the charm of the undertaking which has hitherto acted as a kind of spell to investors. Ireland is only half a day's journey from London, and reports of any particular enterprise in that country can be verified in a few hours. As there is every probability that Steam Tramway extension in Ireland will, when once it receives an impetus, rapidly develop, it may be instructive to give an extract from some of the evidence tendered before the Parliamentary Committee upon the "use of mechanical power on Tramways" in the spring of last year. Mr. W. R. Rowan, C.E., a Danish engineer of some eminence, states:—

"On one of the light railways which are now at work in this country (Denmark) with gradients of 1 to 100, as for example the line from Randers to Grenaa, a train suited to the conveyance of 100 passengers will consist of—

1 Locomotive and Tender...	26 tons.
1 Brake	6½ tons.
1 3rd Class Carriage	10 tons.
1 Composite	7½ tons, or equal to 46 tons.

Whereas a steam train car with similar accommodation will not weigh more than 7½ tons, and, therefore, the railway has to transport three times the amount of dead weight for each passenger which would be required on a tramway with steam cars.

NORTH METROPOLITAN TRAMWAYS.

The shares of this prosperous company have recently met with considerable enquiry, and the demand is fully justified in anticipation of a new issue of capital at such a premium as will give to the shareholders on the register, prior to the closing of the books, a valuable bonus on their shares. It may be well to notice some of the advantages to be derived from the operation now contemplated by the board. Taking the new shares to (say) 4 pence, the reserve fund will be raised to the handsome amount of £100,000, and I have very little doubt that the original shares will stand at the present price ex this bonus. But to my mind the most important effect upon the future of the undertaking will be the making of seven miles of extensions at a time when all tramway materials are exceptionally cheap. The directors will be able to carry out this new work with their own staff on the very closest cash terms. It is well known that every extension made to a tramway system in populous districts immediately yields profitable results to the parent undertaking. As in the recent case of the Sheffield Tramway Company, where the small extension of four miles gave an increase for the past month over the corresponding period of 1876 of no less than 153½ per cent. It is not too much to say that very favourable results from the contemplated extensions of the North Metropolitan. The cost of the new lines will not exceed £7000 per mile, whereas the cost of the Metropolitan and District Railways average about £900,000 per mile.

WOLVERHAMPTON TRAMWAYS.

The whole of the shares of this company, recently offered for sale by the contractors, the Tramways and General Works Company, were rapidly taken up, and the list immediately closed, thus showing, notwithstanding the exceptional dullness of the times, that where the investing public are satisfied as to the soundness of any tramway enterprise, they are quite ready to embark their capital in it. From my knowledge of Wolverhampton I am confident there is a good future for the company.

TELEGRAPH SECURITIES.

As I have recently received a large number of communications from shareholders in submarine telegraph companies asking for information as to the probable effect of the introduction of the telephone upon their property, I conclude that some particulars upon this subject will be acceptable to investors in telegraphs. I freely admit that this, the latest invention in electrical science, reveals a new and marvellous attribute of the most subtle force of nature, and I desire to give all honour to the discoverers, who richly deserve any reward their deep researches may secure to them. It is the especial duty of those who are interested in the development of submarine cable property to welcome and encourage all new appliances which have for their object the increase of facilities for communication between distant lands; but the telephone cannot at present come into competition with such perfect mechanism as Sir William Thomson's recorder or the Morse instrument. Messages costing from 4s. to £100 must not be subjected to the smallest element of uncertainty in transmission such as that to which the human ear would be susceptible. Any submarine telegraph shareholder who has taken the trouble to acquaint himself with the wonderful instruments now in use must be aware that their mere mechanical accuracy in recording all messages to any distance in black and white is a most valuable feature in their utility. Since the introduction of the duplex system (to which I have frequently referred), by which the carrying capacity of telegraph wires has been so enormously increased, all further new inventions must have the effect of enhancing the value of submarine telegraph property generally. The inter-charge of thought between distant countries is daily becoming of greater importance; and to render established systems more and more profitable there are three essential elements necessary to their growth, which must be steadily kept in view:—reliable service, accuracy in transmission, and speed. Where the Administration is able to accomplish this the revenue from submarine cable property cannot fail to grow. I am pleased to notice that the income of all the com-

panies (notwithstanding the depression in trade) is growing, an improvement which is in marked contrast to the prevailing stagnation.

WEST INDIA AND PANAMA.

Having steadily recommended the shares of this company to my clients during the past year, it is a matter of much satisfaction to me to be able to draw attention to the advance in their value in that interval. On Jan. 1, 1877, the price of the Ordinary Shares was 1½ to 1¾, to-day it is 2½ to 2¾, or an advance of no less than 57 per cent. The Preference Shares have likewise improved nearly 25 per cent. Taking the present level of the Ordinary Shares £10 paid at 2½, I am sanguine of correspondingly good results to present investors during the current year. There are several favourable features in this company yet to be developed, the most important being the establishment of the "through" service between North and South America. This is manifestly in the interest not only of the West India and Panama, but the Western Brazilian and Brazilian Submarine Companies, and I am pleased to learn upon reliable authority that there is every prospect of a plan being adopted by which this most desirable link may be completed during the present year. The shares of the Eastern Extension, and Globe Companies are well worthy of attention at present prices.

TELEGRAPH CONSTRUCTION.

Notwithstanding the extraordinary fluctuations in the Stock Markets during the past year, the shares of this sound cable manufacturing company stand higher to-day than at this time last year. In the interim a dividend of £1 16s. per share, or 15 per cent., was paid in March, and the usual distribution of 5 per cent., or 12s. per share in July, or a total yield of 8½ per cent. on the cost to an investor in January last. The price of day, 20, includes the dividend to be paid next month, which cannot fail to be very satisfactory, seeing that several important contracts have been completed in the year just closed, and a sum of £269,274 of undivided profits, or equal to £1 11s. 8d. per share, was brought forward from 1876. I consider these shares a decidedly cheap investment at the price of 29, including as it does the accrued dividend, and a current business of exceptional value.

WILLIAM ABBOTT,

STOCK AND SHARE DEALER,

10, TOKENHOUSE YARD.

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES—No. LVIII.*

BY J. CLARK JEFFERSON, A.R.S.M., W.R. SC.,

Certified Mining Engineer.

(Formerly Student at the Royal Bergakademie, Clausthal.)

[The Author reserves the right of reproduction.]

SECTION III.

The difference between the capabilities of the best of the various designs of machines is, perhaps, not so great as to influence the choice of any particular machine; indeed, more difference will, perhaps, be found in machines of the same design than between two of the best constructed (workmanship) machines of different designs. On this point one of the reports of the working of the Burleigh rock drill in America contains the following:—"As in all duplicated machinery, we find some of our Burleigh drills without any apparent difference in their parts better than others—and the workmen have their pets." A really perfect drill should be automatic in all its movements. To leave the gradual advancing of the machine to the care or carelessness of the workman entails risks which are not compensated for by the greater simplicity of the machine which is obtained at this sacrifice. Other disadvantages, common to nearly all rock drills which have a percussive action, are the liability to sticking fast in the bore hole, especially in soft rocks, and the great amount of power lost both by friction on the sides of the bore hole and the high speed at which the drills are worked; and, lastly, the present forms of rotatory rock drills which have been brought into use, and which obviate to some extent the above defects, are too clumsy and inconvenient, as well as expensive, to compete with the more perfect forms of percussive drills.

COAL CUTTING MACHINES.—As in the case of metalliferous mining, the operation of boring is that occupying, perhaps, most of the time and the greatest amount of manual labour, and consequently one of the most expensive operations in connection with metalliferous mining; so in the case of coal mines the operation of undercutting is that on which most labour and time are spent by the miner, being also of a most tedious character; it is, therefore, not to be wondered at that simultaneous with the introduction of rock boring machines the attempt has been made to introduce machines for undercutting the coal. With what success these attempts have been attended we shall (at least so far as the actual designs of the machines are concerned) show; though it cannot by any means be said that these machines have yet passed the stage of experiment, in spite of the fact that some of them may in some single cases be in regular daily working, this latter being due, perhaps, rather to the favourable conditions for the introduction of the machines than to the intrinsic merits of the machines themselves.

The advantages which may be expected to result from the introduction of coal cutting machines are more than appear at the first glance. The first advantage that one would expect arises from the fact that steam power (which is in every case the original source, whatever the direct motive power may be) is as a rule vastly cheaper than manual power, and consequently that a great economy would result simply from the employment of a cheaper power. Unfortunately for the introduction of coal cutters, steam is out of the question for use in mines, unless some means could be introduced for its condensation. This latter, however, brings in prospect an enlargement and complication of the machine; water, if used as a medium for the condensation of the steam, would have to be led to and away from the machine; the heat which would in any case be brought into the workings of themselves at a sufficiently high temperature would be oppressive, the use of steam pipes that would have to be well lagged to prevent condensation, which when the fact of the non-stationary character of the pipes themselves is considered would have to be constantly repaired. These and similar objections point to the undesirability of introducing steam power direct to work the machines, its introduction into coal mines being even more objectionable than in metalliferous mines. Compressed air is at present the only suitable medium for driving the machines. Water, though less objectionable than steam, offers great disadvantages from the fact that it would after having accomplished its work have to be carried away in pipes or special channels cut for it; and notwithstanding these precautions, both of them expensive, breakages at the joints and machine would put the roads in the neighbourhood in a bad condition. Compressed air, whilst assisting the ventilation, as it can be exhausted direct into the place which it tends to cool, has the disadvantage of causing during its escape and expansion a great absorption of heat, and producing in the vicinity of the exhaust pipe a degree of cold so great as to condense any moisture in the air at the end of the exhaust pipe, where it freezes, and may block up the exhaust pipe.

Another great advantage lies in the fact that less coal is lost from undercutting with a machine than by hand. Most coal cutting machines are constructed to undercut to a depth of from 3 ft. to 3 ft. 6 in., the height of the undercut varying from 2 in. to 3 in., whilst in the case of hand labour the undercut is not often made more than 3 ft. deep, and with a height of 10 in. to 14 in. at the front, and from 3 in. to 4 in. at the back. Of course this advantage is not to be counted on in seams with a suitable dirt parting, in which the holling may take place. In the case of all thin seams, however, where the floor is too hard for undercutting by hand, this advantage is of the greatest importance. Besides, thin dirt partings containing dross, which are not only too thin but also too hard for hand holling, are perhaps the most suitable for machine cutters, it having been found by experience, as in the case of rock drills, that the machines work best in a comparatively

* Being Notes on a Course of Lectures on Mining, delivered by Herr Berggrath, Dr. VON GRODDECK, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

hard rock. Indeed it may so happen that in the case of such a thin parting, which often gives great difficulty in cleaning the coal, it may thus be got rid of, besides saving the great amount of valuable coal which is rendered unmarketable by being cut into slack or dust. In a thin seam the amount of good coal which is lost by hand holling may amount to as much as 25 or 30 per cent., which in the case of a machine cutter would be reduced to from 8 per cent. to 10 per cent.

Again, in the case of machine undercutting, the undercut being deeper than by hand, and a greater weight (in consequence of a greater thickness) of coal at the front end, the mass of coal can be more readily detached by means of wedges than in the case of hand holling, and in not a few cases the difference might be so great as to give the advantage to loosening by wedges over that of blasting with powder, and as a consequence a much larger percentage of round coal. To those who know how great is the amount of small coal produced by an excessive use of powder, which will always occur when the miners charge their own shots, the above advantage will appear by no means the least among those of machine undercutting. When the coal is produced in round large lumps it can be much better dressed than when in small pieces, and less trouble is necessary at the surface in screening. Indeed, where the actual cost of getting the coal may be even increased by the use of machine cutters, their introduction may be advisable in a pecuniary point of view, owing to the above increase in the percentage of large coal, which fetches a higher price. Suppose, for example, that the total cost of getting a certain seam of coal is 6s. per ton by hand, and that it produces 50 per cent. of slack, selling at 4s. per ton, and 50 per cent. of best, selling at 10s. per ton, and that with the use of machines the total cost of getting is increased to 6s. 6d. per ton, with a saving of 20 per cent. in the amount of slack produced—i.e., that by machine cutters only 30 per cent. of slack is produced and 70 per cent. of round coal, selling at the above prices; then per 100 tons of coal got by hand, 50 tons selling at 4s. per ton and 50 tons selling at 10s. per ton, give 35s. as the selling price of 100 tons, which cost in getting 30s., or a profit of 1s. per ton. In the case of 100 tons got by machine, 30 tons selling at 4s. per ton, and 70 tons selling at 10s. per ton, give 41s. as the selling price of 100 tons, which cost in getting, &c., 32s. 10s., or a profit of 1s. 8½d. per ton, a difference of 8½d. per ton in favour of the use of a machine cutter.

We have just mentioned that the best machines work best in the hardest material, from which arises the fact that many seams that cannot be worked at all by hand can be worked to a profit with the use of a coal cutter.

And lastly, though not in a pecuniary point of view, coal cutting machines possess an advantage which, could they be universally introduced it would be difficult rightly to estimate. We refer to accidents from falls of coal whilst undercutting, and in connection therewith; and these in face of the fewer number of men employed at the coal face, and the fact that they are often in a lying posture when undercutting, which renders escape from a falling mass of coal almost impossible, would be vastly diminished in number, and as they form at least 30 per cent. of the accidents in mines there is every inducement for inventors, in a humane as well as pecuniary point of view, to endeavour to bring forward and perfect a machine which is destined at some time to play no unimportant part in the economy of coal mining.

Up to the present time all the machines which have been devised for coal undercutting may be referred to two principles, those in which the cutting tool acts like a pick, and those which have a simple cutting or paring motion of the cutting tool. The former we shall designate as coal cutting machines with a hacking tool, and the latter as coal cutting machines with cutting tools, and we now proceed to a detailed description of the first class of machines.

FIRTH AND DONNISTHORPE'S COAL CUTTING MACHINE.—This machine was first invented in 1861 by Messrs. Firth, Donnisthorpe, and Ridley, but first used at the Balacava Pit of the West Ardsley Collieries, Morley, near Leeds, in 1862. The machine consists of a horizontal cylinder, about 5 in. in diameter and 12 in. in stroke, which imparts (through the intervention of a short connecting rod attached at one end to the piston rod and at the other end to a short lever) a partial reciprocating (rocking) motion to a vertical spindle. On this spindle a neck, or socket, can be fixed at any desired height, which carries the pick somewhat similar (only much heavier) to the Belgian "riveline." During the forward motion of the piston the vertical spindle is rotated through an arc of about 60°, and the pick at the same time makes a corresponding blow in the holling, the pick being drawn back during the back stroke of the piston. The valve motion, as well as the gradual forward motion of the machine, is worked by hand by a workman seated on a trolley behind the machine. The pick end is from 1½ to 2 in. broad, and when in good working order, with a pressure of 55 lbs. per square inch, and with 70 blows per minute, the machine was advanced from 6 to 8 ft. per minute, giving a feed of 1 to 1½ in. per blow. It was found, however, that the total depth of undercut—i.e., 3 ft.—could not be taken out at once, but that it was necessary to repeat the undercutting three times to attain that depth, which reduces the above advance from 2 to 3 ft. per minute; this would give an advance of 320 yards per shift of eight hours if employed in undercutting alone; the advance, however, was in practice from 100 to 110 yards per shift, which gives twice as much time spent in accessory work as in the actual undercutting. The machine rests on a frame made of angle-iron being carried on four wheels, and weighs about 16 cwt. Besides the machinists two-by-two workmen were employed in scraping out the cuttings from the holling, fixing and lengthening the air pipes, changing picks, &c. The effect of these three workmen correspond to that of from 13 to 15 coal getters. During the night shifts the coal was wedged down and filled, and the rails laid and props set. The air is compressed at the surface, and led down the pit in cast-iron pipes, being connected to the coal cutter by 2-in. air pipes. There are three air compressors with steam cylinders 20 in., 22 in., and 17 in. diameter, and 33 in., 44 in., and 48 in. stroke, and with air-cylinders of 18 in., 20 in., and 22 in. diameter, and 36 in., 44 in., and 22 in. stroke respectively. They are used, however, for various other purposes, driving pumps, &c. In 1863 the cost by machine work per ton amounted to 3s. 7d., and by hand 5s. 5d. per ton, or 1s. 10d. in favour of machine work, which was increased by 1s. 1d. on account of the increased percentage of large coal, which gave a total profit of 2s. 11d. per ton in favour of machine work. The cost of attendance, &c., at the air-compressing engines, and the other accessory cost amounted to 3s. 6d. per ton, giving a loss by machine work of 7d. per ton. This loss, however, is essentially to be attributed to the fact that the air-compressor was serving only one machine, and not three as was originally intended, a profit of 1s. per ton in favour of machine cutting being calculated in the latter case.

In spite of this, however, the imperfect character of the machine and the inconvenience and disturbance attending its use led to its abandonment. The machine, from a mechanical point of view, was extremely defective. The movement of the valve not being automatic, and the gradual advance of the machine as the work progressed were left to the care or carelessness of the attendant at the machine, which were thus not always in accordance with each other. A too great an advance of the machine would throw a severe strain on it. It was necessary for steady working that the machine should be clamped to the floor, which would lead to loss of time, and is beside inconsistent with the gradual advance of the cylinder. The lighter parts of the machine are liable to be broken. The necessity of repeating the undercutting three times, besides causing great loss of time, has the attendant danger that with 1 ft. or 2 ft. undercut, extending a length of 30 to 40 yards, there is a great liability of a heavy fall on to the machine (which would be broken), and to the workmen, and even if the coal were well spragged it will in many cases, nevertheless, weaken or narrow the undercut, or even wedge fast the pick. A great loss of power takes place from the vibrations to which the machine, owing to its design, is liable, and the waste of time during the back swing of the pick.

Later improvements have but partially removed these defects, and though the machine is now said to be equal to 40 coal getters

still th
to from
have p

Some
machin
new in
plete f
worse
and a
horolog
scarcel
out me
fully in
of New
opera
the G
lately
machin
points,
power
works,
The exp
Capel-s
object o
by the
burning
the diff
ceptible
In sta
wisely
of this
is absol
place n
being c
be foun
600 squ
yards of
the Fre
called A
intender
which d
easily, a
trouble,
in diam
ers of 10
gas burn
and not
work is
the mach
bons, an
A curi
chines.
power to
power to
required
is about
power is
clear. I
machines
most ess
attempt
governor

UTILIS
sides of
and suppl
quence of
of Glasgo
iron oxid
comparat
consists p
reducing
in the or
coal, or o
the impro
soapmak
The prop
of the wa
by weight
the iron o
according
to 50 part
put the m
bricks, an
by 4 in, b
sufficient
some pres
using a si
through a
may be fo
the bricks
furnace, s
ore bricks
hereinbef
a little cas
charge the
about 5 p
to increas
scrap alon
in the bot
ture throu
in about t
he prefers
of the imp
soda and
former, an
100 parts
proportion

PROTEC
surfaces
other influ
ceiving th
and he has
protective
the employ
elevated to
which it is
subjected
capable of
tially clos
tubes is o
the same, i
contained
the appar
of air or o
of the sam
in the app
with a pro
objects to
mentioned
ture of the
give the be
the objects
internal ap
equally app
bination of

still these defects, and the great first cost of plant, which amounts to from 4500l. to 6000l. for a set, including from 8 to 12 machines, have prevented this machine from coming into regular use.

LIGHTING BY ELECTRICITY.

Some few years since much attention was directed to the Gramme machine for the economic generation of electricity, but like many new inventions it was brought forward in a very crude and incomplete form, the natural result being that it was not successful, and worse than that, it was very generally condemned as impracticable and a failure; it was adopted by the Post Office authorities for horological purposes, and abandoned, and the success elsewhere was scarcely greater. Yet it appears that the invention was not without merit, for it has since been perfected, and is now being successfully introduced in this country by Messrs. CHARLES BALL and Co., of New Bridge-street, who have already several of the machines in operation. It is claimed that lighting by electricity as effected by the Gramme machine and plant has now been reduced to an absolutely practical fact. The plant employed is a magneto-electric machine, an electric lamp, conductor wires and accessories, carbon-points, and a lantern to disseminate the light produced. Motive-power can be obtained from any shaft conveniently at hand in the works, but when these are not available special engines may be used. The experiments made at the works of Messrs. EDMUNDSON and Co., Capel-street, Dublin, were remarkably successful. Every minute object on the floor or benches at the far end of the large space covered by the factory was rendered distinctly visible. A few gas-jets left burning appeared in comparison almost destitute of brightness, while the different shades of colours of some ribbons otherwise only perceptible by daylight, were readily distinguishable.

In stating the power of the light, Messrs. BALL and Co. have wisely avoided the exaggeration too common with regard to lights of this character. They explain that the light given by one lamp is absolutely equal to that of 500 gas burners, but that it cannot replace more than sixty or eighty of them on account of the light being concentrated in one point. They say, however, that it will be found sufficient for about 300 square yards of weaving sheds, 600 square yards of engineering works, and 2000 to 3000 square yards of open spaces, such as yards, shunting platforms, &c. At the French Great Northern Goods Depot, at Paris, four of the so-called A machines have been working over a year under the superintendence of a simple stoker, who attends to a portable engine which drives them. This machine is extremely compact, works easily, and is free from stoppages, heating, or any other cause of trouble. It runs at 850 to 950 revolutions, the pulley being 6 in. in diameter. It produces an amount of light equal to 500 gas burners of 10 candles each. In practice one lamp will replace (say) 70 gas burners, but about seven times the amount of light will be given, and not only so, but the light is brighter and more pleasant, more work is accomplished, and it is of better quality. The total cost of the machine is about 100l., and the lamps, lantern accessories, carbons, and conductors come to about 50l. more.

A curious circumstance is mentioned in connection with the machines. A machine yielding 6000-candle power requires 24-horse power to work it, and a 25,000-candle machine requires 8-horse power to work it, but it is stated that although these are the powers required really to work the machine, the power required at starting is about double, as during the first few seconds a large amount of power is absorbed in some particular way which is not yet quite clear. If, therefore, a special engine be used for driving any of these machines it ought to be about double the power named, and as it is most essential that the speed should be regular it is useless to attempt to work the machines with any engine that has not a good governor. The invention now promises to be really valuable.

UTILISING RESIDUARY IRON ORES.—The treatment of the residues of complex ores from which other substances, such as copper and sulphur, have been extracted, has presented difficulties in consequence of their powdery and granular condition; Mr. H. W. ALLAN, of Glasgow, has, therefore, patented an invention applicable to any iron oxides which from their powdery or granular condition, and comparative infusibility, have hitherto been difficultly reducible, and consists principally in employing improved fluxes in the process of reducing the oxides, such process being in other respects performed in the ordinary manner in any suitable furnace, with the aid of coke, coal, or other suitable carbonaceous substance. One modification of the improved flux consists principally of the compound known as soapmakers' waste, and having lime and soda as its chief ingredients. The proportion to be used will depend on the precise constituents of the waste and other circumstances, but in general 50 to 100 parts by weight in the dry state should be used with every 100 parts of the iron ore or oxide. In practically carrying out his invention, according to the first modification, Mr. Allan finds it best to mix 30 to 50 parts common clay with 100 parts soapmakers' waste, and put the mixture through a pug mill. He forms the mixture into bricks, and dries them in a stove, a suitable size of brick being 7 in. by 4 in. by 3 in. The clay is proportioned so as to make the bricks sufficiently coherent for handling and retaining their form under some pressure. He also forms similar bricks of the iron ore or oxide, using a similar proportion of clay, and also passing the mixture through a pug mill, and drying the bricks; or the iron ore or oxide may be formed into bricks with any suitable carbonaceous substance, the bricks being subjected to a coking process. An ordinary cupola furnace, such as is used for melting cast-iron, may be used, and the ore bricks and waste bricks are charged into it in the proportions hereinbefore stated. When the waste does not contain much soda a little caustic or carbonated soda should be added to it. With each charge there should be added for every 100 parts iron ore or oxide about 5 parts of sandstone or slag or other ordinary fluxing materials to increase the fusibility. He finds it advantageous to mix cast-iron scrap along with the iron ore or oxide, and to keep a quantity lying in the bottom of the furnace, in order to maintain a high temperature throughout successive charges. The coke or coal used may be in about the proportions ordinarily used for smelting iron ore, and he prefers to use a mixture of coke and coal. A second modification of the improved flux consists of a mixture of caustic or carbonated soda and caustic or carbonated lime, from 10 to 20 parts of the former, and from 30 to 50 parts of the latter being taken for every 100 parts of the iron ore or oxide, and with this modification also a proportion of ordinary fluxing materials may be used with advantage.

PROTECTING METALLIC SURFACES.—The treatment of metallic surfaces so as to render them less susceptible to atmospheric and other influences capable of affecting them, has recently been receiving the attention of Mr. GEORGE BOWER, of St. Neots, Hunts., and he has found that he can attain the desired end by forming a protective film or coating upon the surface of metallic objects by the employment of air or of oxygen, or of a mixture of them at an elevated temperature. The metallic objects or metallic surfaces which it is intended to submit to the protecting process are either subjected to heat in a retort chamber or other apparatus which is capable of being heated externally, and also of being wholly or partially closed, and to such retort chamber or apparatus a tube or tubes is or are adapted in order that air or oxygen, or mixtures of the same, may be allowed to pass over, in, and among the objects contained therein at any desired pressure; or, instead of causing the apparatus to be heated externally he employs a heated current of air or of oxygen, or of an oxidising agent composed of mixtures of the same, heated to such an extent as that the objects contained in the apparatus shall become oxidised, and thus become coated with a protective film or covering; or the apparatus containing the objects to be treated may be heated externally, and the before-mentioned oxidising agents be admitted at the ordinary temperature of the atmosphere. The temperature which he has found to give the best results ranges from a dull to a bright-red heat, whether the objects be heated by the external application of heat, or by the internal application of the heated oxidising agent. The process is equally applicable to all kinds of iron and steel, and to any combination of them. The operation is continued until a protective

film or covering of the desired thickness shall have been formed, and upon the objects being then allowed to cool they are ready for useful application in the arts.

MIDDLESBOROUGH AND SCOTCH IRON.

At the commencement of another year we again submit our comparative statistics of the Cleveland and Scotch Pig-Iron Trades for 1877, and we regret that a retrospect of the past twelve months affords so little matter for congratulation, every branch of the trade having been marked by continued and increased depression, with prices at the end of the year remaining at almost their lowest point. We commenced the year with Cleveland No. 3 pig iron, at 46s. 3d. This price, however, was not maintained; and, with occasional slight fluctuations, it fell away gradually to 40s., which was the nominal quotation at the end of the year. The production reached the large total of 2,124,831 tons, showing an increase of 49,266 tons on 1876. The total quantity in stock at Dec. 31 last was 304,797 tons—262,067 tons being in makers' hands, and 42,730 tons in storekeepers' yards—which shows an increase over 1876 of 122,256 tons. The present low range of prices has led to a combination on the part of a number of the makers to maintain, if possible, a fixed price (now 41s. for No. 3), and also to considerable discussion as to the blowing out of a portion of the furnaces in order to reduce the make; neither proposal is, however, as yet sufficiently developed to warrant any decided opinion as to their results.

In the Manufacture, as in the Pig Iron Trade, there has been a steady decline in prices, which may be estimated at 17s. 6d. per ton all round; and even with rates always tending in favour of buyers, sellers have had great difficulty in securing orders, and the mills have been only partially employed. Rails, once the great staple of the district, continue, with a few local exceptions, to be a dead letter; the demand for bars has been exceedingly slack, and plate and angles alone have afforded anything like regular employment to manufacturers.

The question of the production of Steel from Cleveland Pig Iron, referred to in our last annual circular, has attracted great attention, and continues to do so, the results of the efforts in this direction being regarded as of great importance to the district; and should the success that is hoped for be attained the effect on the future of the trade cannot fail to be strongly marked.

The Scotch Pig-Iron Trade has been dull and inactive, and the price of warrants has declined from 57s. 10d. in January to 51s. 6d. at the end of the year; and, notwithstanding a considerable restriction of production, the stock shows an increase of 142,000 tons, the total on Dec. 31, 1877, being 505,000 tons, as against 363,000 tons at the corresponding period of the previous year.

In the present unsettled state of politics we venture on no prediction as to the future of the trade generally, but should a durable peace be established in Europe it may not be unreasonable to hope that enterprise will be stimulated by confidence and that the present low rates of all descriptions of iron will attract a better demand, and induce a steady if gradual improvement in prices.

Middlesborough-on-Tees, Jan. 8. FANSON, ARMSTRONG, AND CO.

CLEVELAND.

Furnaces in blast, Dec. 31, 1876	111	Stock of pig iron, Dec. 31, 1876	—
Do., out of blast, do.	47	In makers' hands	262,067
Total	158	In storekeepers' yards	42,730
Furnaces in blast, Dec. 31, 1877	106	Total	304,797
Do., out of blast, do.	56	Stock of pig iron, Dec. 31, 1877	—
Total	162	In makers' hands	262,067
Production in 1876	2,075,565	In storekeepers' yards	42,730
Do., 1877	2,124,831	Total	304,797
Increase	49,266	Total stock, 1876	363,000
		Do., 1877	505,000
		Increase—1877	142,000

SCOTLAND.

Furnaces in blast, Dec. 31, 1876	116	Stock of pig-iron, Dec. 31, 1876	—
Do., out of blast, do.	41	In makers' hands	255,202
Total	157	In storekeepers' yards	107,798
Furnaces in blast, Dec. 31, 1877	86	Total	363,000
Do., out of blast, do.	69	Stock of pig-iron, Dec. 31, 1877	—
Total	155	In makers' hands	262,067
Production in 1876	1,103,000	In storekeepers' yards	42,730
Do., 1877	982,000	Total	304,797
Decrease	121,000	Total stock, 1876	363,000
		Do., 1877	505,000
		Increase—1877	142,000

THE COPPER TRADE.

Stocks in Europe:—	Tons.
Chili ores and regulus, Liverpool & Swansea (equal to fine)	3,052
Chili bars in Liverpool	12,178
Do. Swansea	2,230
Chili ingots in Liverpool	10
Do. Swansea	—
Foreign copper (chiefly Australian) in London	4,662
Do. Liverpool	468
English copper in London	488
Chili bars and ingots and Barilla in Havre	8,399
Other copper in Havre	300 = 31,349
Afloat and chartered from Chili to Europe (advised by mail):—	
Ores and regulus (equal to fine)	2,351
Bars and ingots	4,400 = 6,751
Afloat from Australia (advised by mail):—	
Fine copper	1,000
Afloat and chartered from Chili to Europe (advised by cable):—	
Fine copper	2,900
Total	42,000
Exports of Lake Superior copper from Jan. 1 to Dec. 1877:—	
Havre. Ham. Bremen. Rotterdam. Liver. London. China. Total.	
1877... 4071 ... 560 ... 20 ... 105 ... 50 ... 75 ... 4881	
1876... 4085 ... 1579 ... 103 ... 182 ... 201 ... 253 ... 402 ... 6885	
Leadenhall-street, Jan. 1. HENRY R. MERTON AND CO.	

There was one continuous fall throughout 1877 in prices, and only from the terribly low figure of 63s. for Chili copper (early in December) was there the slightest reaction. The importations of copper have very largely increased, and when the 12 months' returns are published it is believed, show over 100,000 tons, the increase being principally in pyrites. Our exports compared with 1876 have decreased, but as stocks have not augmented to any great degree, it is certain the home demand has been better in consequence of the very low prices at which the metal has been ruling.

We subjoin our usual monthly statistics. The imports of copper into England for the first eleven months of the following years were—1873, 64,162 tons; 1874, 65,576 tons; 1875, 72,129 tons; 1876, 71,720 tons; 1877, 83,916 tons. The exports for the same periods were—1873, 49,983 tons; 1874, 54,527 tons; 1875, 45,226 tons; 1876, 47,104 tons; 1877, 46,755 tons. The position from Jan. 1, 1877, to Dec. 31, 1877, was as follows:—

	Price.	Stock on hand.	Advised by mail only.
1877—January 1	£ 76 10 0	Tons 26,530	Tons 34,226
February 1	73 0 0	26,518	36,032
March 1	71 0 0	26,461	36,047
April 1	71 0 0	26,563	36,833
May 1	69 0 0	26,585	35,968
June 1	69 0 0	26,342	34,844
July 1	69 0 0	26,523	35,578
August 1	69 0 0	26,893	34,513
September 1	67 0 0	31,004	35,437
October 1	66 0 0	31,823	36,339
November 1	65 10 0	31,454	36,177
December 1	63 10 0	30,701	36,861
December 31	66 0 0	31,358	36,713

The exports from the West Coast to Nov. 13 were 38,416 tons, against 44,354 tons in 1876. The charters to Dec. 31 were 44,100 tons, against 49,400 tons in 1876. Leadenhall-street, London. HENRY ROGERS, SONS, AND CO.

Arrivals here (Liverpool) during the fortnight of West Coast, S.A., produce—Delaware, from Coquimbó, 550 tons bars. At Swansea—Scout, from Totorillo, 78 tons regulus and 594 tons bars; Serens, from Carrizal, 773 tons regulus; Atlantic, from Pena Blanca, 740 tons regulus. Stocks of copper (Chilian and Bolivian) in first and second hand, likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	1223	917	12,178	10	—
Swansea	2754	4078	2,230	—	—
Total	3977	4995	14,408	10	—

Representing about 17,460 tons fine copper, against 17,037 tons Dec. 15; 14,560 tons Dec. 31, 1876; 12,400 tons Dec. 31, 1875; 11,800 tons Dec. 31, 1874. Stock of Chili copper afloat and chartered to date, 9800 tons fine, against 12,400 tons Dec. 31, 1876; stock of foreign copper in London, chiefly Australian, 4797 tons fine, against 2410 tons Dec. 31, 1876—Dec. 31. HARRINGTON, HOARE, AND CO.

Messrs. RICHARDSON and Co. report that the Swansea imports of foreign copper produce during the quarter ending Dec. 31 was (including two small transshipments thereto of Cupe ore and Rio Tinto precipitate)—ore, 25,772 tons; regulus, 967 tons; copper, 594 tons; precipitate, 453 tons; and barilla, 28 tons. The Swansea export of manufactured copper during the same period was 2754 tons; Cape, 1513 tons; Quimbó, 554 tons; Kuan, 740 tons; Spanish, 378 tons; Portuguese, 325 tons; British, 223 tons; Newfoundland, Betts Cove, 6983 tons; Union, 490 tons; and Dutch, 203 tons; together 15,958 tons. There was also 4078 tons of regulus, and 2330 tons of copper; the ore, regulus and copper representing together 5800 tons of fine copper. Since these figures were made up 25 tons have been delivered out of stock. The charters advised during the past month are—For the last half of November 450 tons bars and ingots, 450 tons pure in ore and regulus for England, 400 tons bars for France. For the first half of December 1600 tons bars, all for England. Estimating the last fortnight of the past year at 1800 tons pure, the charters compare as follows:—

	1873	1874	1875	1876	1877
48,231	49,372	48,829	49,059	49,492	49,492

A comparison of the stocks in England (reduced to fine copper) at the close of the last five years at Liverpool, Swansea, and London, was—

	1873	1874	1875	1876	1877
Chili—ores and regulus	3,123	990	718	1,620	3,064
Ditto, bars and ingots	18,247	10,994	11,454	13,257	14,411
Foreign copper—chiefly Australian	5,590	4,564	8,300	2,802	6,438

Total 26,960 ... 16,457 ... 13,602 ... 17,705 ... 22,903

Price of Chili bars (g.o.b.'s) ... 283 ... 287 ... 281 ... 276 ... 266

In the early part of the past month our copper market in Chili bars showed considerable activity; large parcels changed hands at increasing values until about the 17th, when bars of g.o.b.'s were eagerly sought at 67l. 10s., with sellers at 62l.

We quote to-day—Chili bars, 65l. 10s.; Wallaroo, 75l. 10s.; Burra, 73l. 10s.; tough, 71l.; manufactured, 76l.; ore, 12s. 6d. per unit. The imports and exports for the whole year were, by the Returns of the Board of Trade:—

	1876.	1877.
Imports.		
Ore	Tons 114,132	74,966
Regulus	32,550	27,904
Copper	40,730	39,145
Exports.		
Foreign raw	14,450	17,234
English raw	11,226	11,700
Manufactured, including yellow metal and brass	28,700	23,525

London. FRENCH AND SMITH.

THE TIN TRADE.

	Nov. 30, 1877.	Dec. 31, 1877.	Dec. 31, 1876.	Dec. 31, 1875.
Straits and Australian, spot	Tons 8,608	8,220	7,276	6,400
Ditto, landing	228	871	370	519
Straits afloat	685	476	750	805
Australian afloat	1,222	2,730	2,900	2,183
Banca, on warrants	1,544	1,172	1,068	811
Ditto, Trading Co.'s hands	417	876	618	2,001
Ditto, afloat (by sailing vessels only)	328	194	472	403
Billiton, spot	1,283	1,300	1,047	970
Ditto, afloat	1,100	1,450	1,500	1,000
Australian tin in Holland	577	550	730	—
Total	Tons 16,888	17,229	15,831	14,351
Deliveries during the month in				
London	1,016	680	906	724
Ditto, Holland	391	496	484	548
Total	Tons 1,407	1,176	1,390	1,272
Prices of Straits	267 0	286 0	275 10	281 0
Shipments from Straits, in December	Tons 89			
Ditto, Australia, ditto				
Shipments from Straits to London	Tons 2,901			6,047
Shipments from Australia to London		9,093		6,930
Deliveries of foreign tin in London		10,615		10,571

* The shipments from Australia in November, which owing to the interruption of the cable we estimated last month at 700 to 1,100 tons, are advised as 1350 tons. † Also 263 tons over to America.

London, Jan. 1. A. STRAUSS AND CO.

A firm feeling pervaded our tin market during the first half of the month, prices advancing ½ d. to 1 d. Upon reported heavy shipments from Australia the improvement subsided, and sellers coming out freely, the advance was immediately lost. There has been a fair demand both for exports and speculation, which, however, has been liberally met by holders. Banca has been in good request, the price advancing from 40½ d. to 41½ d., and subsequently declining to 40½ d., which is our closing quotation. 10,000 pounds Billiton offered in public sale at Batavia on the 10th inst. fetched the average price of 43 7½ d., costing to sell here about 40 d. by steamer. Next sale, comprising the same quantity, will take place in February, 1878. The position of Banca tin in Holland on Dec. 30, according to the official returns of the Dutch Trading Company, was—

	1877.	1876.	1875.
Import in December	Slabs 14,725	3,904	4,616
Total twelve months	145,358	10,860	94,019
Deliveries in December	11,900	8,400	10,200
Total twelve months	131,695	132,033	126,433
Stock second-hand	37,517	34,111	23,941
Unsold stock	28,047	19,760	65,952
Total stock	65,564	53,871	91,893
Afloat	Peculs 3,100	7,550	6,450
Statement of Billiton:—			
Import in December	Slabs 6,000	11,500	12,319
Total twelve months	97,760	105,789	84,951
Deliveries in December	8,551	10,860	7,267
Total twelve months	86,808	104,849	86,458
Stock	38,510	30,619	29,679
Afloat	Peculs 16,000	16,000	16,000
Quotation Banca	41 d.	45 d.	50 d.
Dec. 30, Billiton	40	44	48½

These combined returns of Banca and Billiton for 1877, compared with those for 1876, exhibit—An increase of the import for December of 166 tons; an increase of the import for the twelve months of 1290 tons; an increase of the deliveries for December of 37 tons; a decrease of the deliveries for the twelve months of 491 tons; an increase of the stock second hand of 358 tons; an increase of the unsold stock of 259 tons; an increase of the total stock of 612 tons; a decline of the quotation of Banca of 6l. 13s. per ton. The Government returns for the month of October are:—

	October.	Ten months.
Germany	1877. 255	1876. 295
England	14	176
Belgium	168	299
France	38	75
Hamburg	41	41
United States	2	7
Other countries	22	78
Total	533	951

Rotterdam, Dec. 31. EBELENG AND HAVELAAR.

THE COAL TRADE.

Mr. J. R. Scott, the Registrar of the London Coal Market, has published the following statistics of imports of coals into the port and district of London by sea, railway, and canal during December:—

By sea.	Ships.	Tons.	By Railway and Canal.	Tons.
Newcastle.....	213	174,844	London & North-Western.....	111,198
Seaham.....	25	14,022	Great Northern.....	81,668
Sunderland.....	124	57,118	Great Western.....	80,891
Middlesborough.....	7	2,542	Midland.....	14,187
Hartlepool.....	95	31,423	Great Eastern.....	27,775
Scotch.....	6	3,351	South-Western.....	1,325
Welsh.....	6	2,301	London, Chatham, and Dover ..	30
Yorkshire.....	16	2,136	South-Eastern.....	1,245
Small coal.....	11	3,843	Grand Junction Canal.....	275
Cinders.....	3	342		

Original Correspondence.

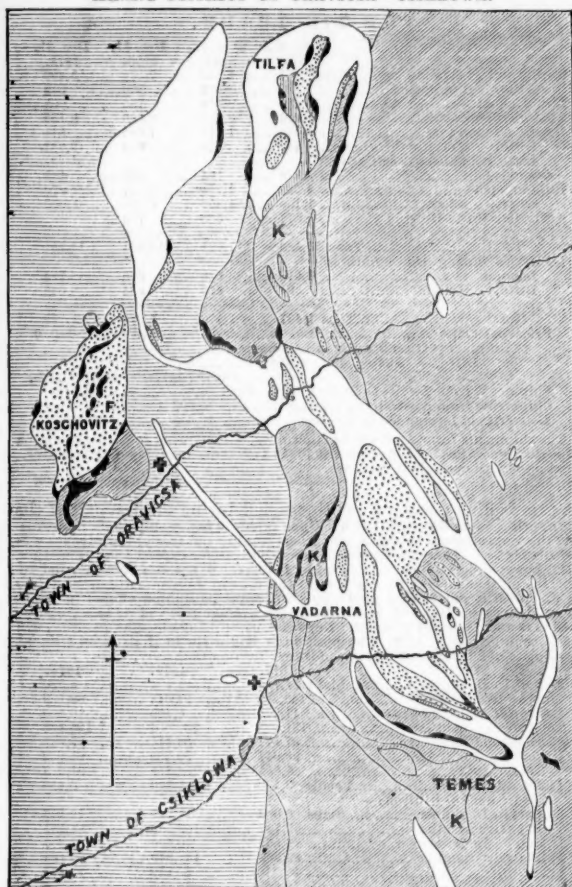
MINING IN THE EAST—No. XXIV.

CONTACT DEPOSITS OF THE BANAT.

SIR,—For the convenience of description, and for the sake of following some difference in the association of the mineral-bearing rocks, the district may be divided into three portions:—
Csiklowa Mines, in limestone.
Roschowitz Basin, in schist.
Tilfa Mines.

The changes which plutonic disturbance has effected in the disposition and texture of the originally horizontal strata of limestone and marl are very complicated and perplexing; and as it will be, therefore, not easy to comprehend the description, a geological plan has been obtained—through the kindness of the States Railway Company—in order to delineate clearly the remarkable manner in which dissimilar rocks have been massed together.

MINING DISTRICT OF ORAVICA—CSIKLOWA.



Scale—700 fms. to 1 in.

Tremolite, is distinguished by perpendicular lines.
Hornstone, by diagonal lines, marked K.
Felsite rock, dotted space, marked F.
Limestone is shown by diagonal lines.
Schists, by horizontal lines.
Garnet rock and gangart, by fine dots.
Syenite or bananite, white.
Metallic deposits, black.

CSIKLOWA MINES.—This mining tract is found amongst the fragments of the displaced strata of Neocomien limestone, which has become crystalline for some distance around the eruptive boss; removed from its influence, however, the beds have been but little disturbed. The violence of the upheaval and its metamorphic effects can be best recognised at its eastern confines, where it is skirted by lofty crags of crystalline lime-rocks, out of whose flanks denudation has carved ravines and gullies innumerable. Soft granular rock, of a pale grey colour, which breaks with a fine even fracture, overspreads in detached masses the central portions of the syenite, but these are unaccompanied by any deposits of mineral. It is only on the lateral parts, where the syenite is brought into contact with the indurated walls of the lime-rock or hornstone that the repositories of metallic minerals have been worked. They are by no means numerous, and the occurrence of these along the many junctions is so very erratic that the prospector can discern no rule to guide him in his explorations, which are rendered more uncertain by the absence of the conspicuous caps of gossan, by which the more important deposits are generally indicated. The frequent smallness and poverty of the deposits is as remarkable as their paucity, and it seems apparent that masses of lime-rock, surrounded by eruptive rock, is much more favourable to the deposition of ores than where the syenite, having simply broken through the limestone beds, are encompassed by them.

Though no deposits worth exploiting have been found along the eastern limits of the eruption, it is not improbable that some may exist there. It is throughout the western fringe that ores of the useful metals have segregated themselves. Everywhere the hills have been burrowed and tunneled by the operations of the miner, and over them the surface has become a waste of dangerous holes and chasms, which, intermingled with huge mounds of mine rubbish, some recent, but most of them covered with mould, supply convincing evidence of the industrial energy of the past. Many of these mines produced ores which now would scarcely be considered workable; but a century since, when labour as well as material were cheap, it was undoubtedly found profitable to work them. During recent times a number of mines have been opened and worked; most of them, however, proved unprofitable. A succinct account of those which, either from the rich ores they formerly produced, or from the phenomena of their deposition, have attracted attention may, perhaps, be interesting, observing that just now the whole of the mines are idle, and that only a few aged tributers, who monthly glean a few hundredweights of argentiferous lead and copper from the old stopes remain to represent the busy mining population of the past.

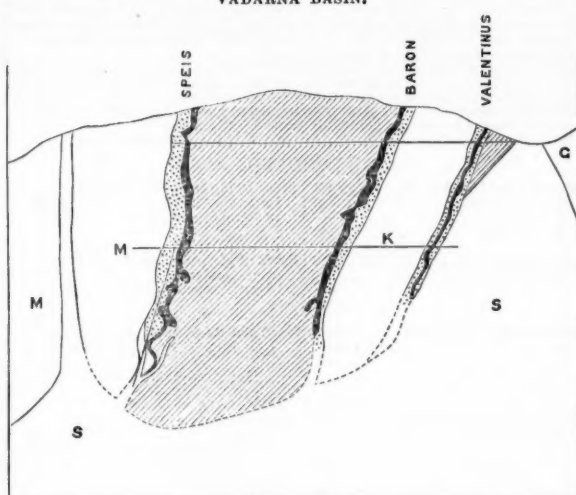
TEMES.—These mines accompany an extended strip of white limestone of small magnitude, which, resting wholly on syenite, induced the crystallisation of mineral along the southern junction, where the tendency of a limestone escarpment to develop a valley when associated with a rock prone to decompose disclosed the deposits. These, occurring without the interposition of much gangue, were of no great value, and, dispersed along the contact in small shoots, or filling the irregular flutings of the lime-rock, had seldom more than a few feet in thickness. The pipes and masses were of pyritic copper ore mingled with quartz, and varied in width from 3 in. to 3 ft. They were sometimes 7 fms. long, but rarely exceeding 3 fms. in depth. The ores raised averaged from 3 to 5 per cent., but in the hollows of the lime-rock they rose occasionally to 12 per cent.

To the east the mines of Dreifaltigkeit and Ferdinand produced ochreous ores, containing low-grade argentiferous copper, which were also plumbiferous. These poor ores were extracted from small vertical pipes in the limestone near the syenite. Still further east are the Kaiser and Procopi Silver-lead Mines, similarly situated;

but the pipes are filled with argentiferous lead oxides, which, though sufficiently rich, lack quantity.

VADARNA.—It was on the vine-clad summit of the hill which separates the valley of Csiklowa from that of Oravica that the rich copper mines belonging to the former district were discovered. The surface indications were not conspicuous, owing to the vein-like character of the deposits, and did not show, therefore, the "eiserne Hut," which the Banat miner believes so essential. The rocks composing this ridge are so diversified that it is difficult to distinguish at surface the tortuosities of the syenite, lime-rock, and hornstone. The ores were deposited towards the southern extremity of a large tract of limestone, extending northwards to the Oravica reservoirs, which reposes on schist to the west, and is separated from the syenite by a narrow band of hornstone. On the opposite walls of this mass, here contracted to a width of 50 fms., have been deposited argentiferous copper ores, which are characterised by the presence of arsenic sulphide. All the courses of ore lie against the lime-rock, whose inequalities they fill; but between them and the schist or hornstone is interposed a thin stratum of a peculiar gangue, varying in thickness from 3 to 5 fms. The shaft by which the deposit on the schist contract was exploited is known as Speis Schacht, and that next the hornstone as Baron Schacht. Some 200 fms. north of the latter on the same contact is Theresia Mine, which produced 10 per cent. copper ores, sometimes highly argentiferous. This group of mines were very profitable, and yielded for many years rich ores, until at the depth of 100 fms. the water-charges became too onerous, and the mines were suspended. The accompanying section across the deposits has been compiled from data supplied by the States Railway Company, and is drawn at a scale of 400 ft. to an inch.

VADARNA BASIN.



Lime-rock, diagonal lines.
Gangart, dotted lines.
Veins, black.
G.—Garnet rock.
K.—Reiselchieser or hornstone.
S.—Syenite.
M.—Crystalline schists.

The section seems to evince that, notwithstanding the ores were unbottomed, still, from the appearance of syenitic veins intruding into the deepest workings, it must be considered improbable that the cupreous deposits can extend to any considerable depth. The rich shoots in Speis and Baron Schachts had to be abandoned on account of the disproportional expenses of draining them by a break-pump, which demanded daily the exertions of 24 labourers to maintain in continual activity.

The gangue which enclose the veins, or rather columns, of metallic minerals—which varied in size from 5 to 15 ft.—is at Speis Schacht made up of quartz and calcite, in which garnet prevails, whilst at Baron Schacht it consisted of these three minerals distributed in a felspathic base. Comprised within similar gangues, and in the same line of contact, were several other mines, which, though not so productive, were not unimportant deposits. Rosalia and Valentius, names given to two columns on the junction of the hornstone and syenite, are still, to a small extent, worked for their ores of argentiferous copper and lead. Santa Maria was another mine which yielded sulpho-arsenical ores of copper, averaging 7 per cent. It is on the contact of syenite with lime-rock, and, in consequence of the small bulk of the latter, the ores only continued to a depth of 25 fathoms. All the copper ores raised from the Vadarna district were argentiferous, containing from 6 to 20 ozs. to the ton of ore. The small quantities of galena with blende and galinac were very rich in silver.—*Maidampek, Nov. 19.*

EMPRESSARIO.

FLAGSTAFF SILVER MINING COMPANY.

SIR,—I was pleased to learn that at the office of the company to-day, that Mr. Harvey and Mr. Pearson have resigned their seats, and that Professor Vincent and Mr. Garne have organised a new and harmonious board, who are preparing to meet the shareholders in a few days with a plan that I hope will meet with general approval. We may now hope that we have heard the last of fault finding, and that the new board will attend to saving the property from sinking in the mire in which the retiring directors have left it. Private information from Salt Lake City states that the Flagstaff Mine is looking better as developments proceed, and is turning out very large quantities of first class ores. There seems to be no doubt about its being a most valuable property, and I hope the shareholders will attend the meeting and assist the new board by all means in their power, for we really require a thoroughly united effort to save the property; but it is well worth trying, and we must all come out with our mite if it is required. Our prospects in the mine are better than the Richmonds were a short time ago, and see what returns they are making now. All our mine requires is honest and competent management at home and abroad. This, I think, we are now in a fair way of getting. I have been asked how money is to be raised to pay off the present debt? As far as I can learn from private as well as information at the office, the amount required in cash is not a large one; and I have no doubt the shareholders will take up debentures for all the money the board requires. If each shareholder would take up his proportion it would only be a few pounds each, and those who do not take their proportion will simply be losing the chance of loaning their money at a high rate of interest on a good property, and I think there are plenty that will take them. I should, therefore, strongly recommend each shareholder to take up his proportion, if debentures are issued, and thus secure to himself not only a high rate of interest but greatly enhance the value of his shares.

Jan. 9.

A SHAREHOLDER.

FLAGSTAFF MINING COMPANY.

SIR,—My attention has been called to a letter in last week's Journal, under the head of Flagstaff, in which the writer, who signs himself "A Debenture-Holder," asserts that Professor Vincent at one time gave his consent to the employment of Mr. Hunter. I was one of those who attended the first debenture-holders' meeting (which took place about a month ago), and I remember distinctly that on that occasion the chairman—Mr. Harvey—insinuated that Mr. Vincent had himself at one time expressed his willingness to the employment of Mr. Hunter, whereupon the Professor rose and explained that the only way in which he had ever been agreeable to his employment was in respect to the post of Manager. He acknowledged his willingness to award Mr. Hunter a handsome bonus in case he succeeded in wresting the mine from Mr. Davis; and he had acquiesced likewise in the suggestion to appoint Mr. Hunter at a fixed salary per month (in which case he could soon and easily have been got rid of), but as to making him a fixture in the shape of lessee he would under no consideration have countenanced such a step. I am satisfied, therefore, that your correspondent can safely dismiss from his mind all idea that Professor Vincent was ever favourable to granting Mr. Hunter a lease. I feel compelled to say that I regard all the letters which appeared in last week's Journal as at least inspired by Messrs. Harvey and Pearson. Their recent acts in publishing Beatty's letters entire—not even leaving out essentially secret and confidential matter—is in my opinion most objectionable. Let us hope for a better state of things, and without delay.

Jan. 7.

A LARGE SHAREHOLDER.

[For remainder of Original Correspondence see this day's Supplement.]

At the Norwich Union Fire Insurance Company annual meeting a dividend was declared for 1877 at the rate of 25% per share, 30% per share paid,

or at the rate of 83 per cent. per annum. The corresponding dividend for 1876 was 22% 10s. per share, or at the rate of 75 per cent. per annum.

ECHOES FROM THE MINING MARKET.

There is no change in the mining market, and prices remain much in favour of buyers. A great want of animation is apparent, although should the Eastern War be closed as early as many now anticipate there would soon be a marked advance in quotations.

The business of the week has been principally confined to lead shares, and we are glad to notice one particular feature of interest which will not be without its influence on the market. We understand that West Chiverton is about to resume dividends, with a distribution this month of 10s. per share. The profit has amounted to about 1800l., and we are informed on good authority that there is every prospect of the dividends being regularly maintained in future. Contrary to expectation, the Great Laxey dividend has been announced at 10s., or rather the dividend proper is 8s. and bonus 2s. per share. If, as it is asserted, money will have to be borrowed on produce to pay this dividend, it is to be regretted that the directors were not content to make a smaller distribution. Van shares are quoted 28 to 30, and the dividend of 12s. per share, and should be worth purchasing for investment, as a rise in price is almost a matter of certainty. Tankerville shares just at the close have been in prominent demand, the quotation has advanced from 3½, 4½ to 4½, 4½. Roman Gravel is also firmer, and the same may be said of West Chiverton, but Rookhope have been freely offered, and close weak.

North Laxey have not moved since the meeting. No change was made in the Isle of Man management, but the question was rather warmly discussed. A majority of the board appeared to be in favour of an alteration being made, but the feeling of the meeting was evidently against it. A special meeting will probably be convened to consider the financial position of the company. A very good report has been issued from Pandora, and the agent writes the following important words respecting the prospect of the mine:—"As to the new year on which we have now entered, I have pleasure in saying, without hesitation, that our prospects as to produce of ore were never so good as now, and with the ore at former prices I should have no hesitation in promising you an early dividend. My aim now is to increase the returns at the present rate of expenditure, and no effort shall be spared to accomplish this if possible."

Tin shares have been very quiet, and quotations have dropped all the week. As the present phase of the Eastern Question appears more favourable than it did a few days ago, hopes are entertained of an early revival of trade. At the same time tin statistics are not so favourable as they were, and smelters continue to give considerably under their official quotations for ores.

There is a rumour on the market that a discovery of copper has been made in the bottom of Carn Brea; if true, the discovery is an important one. We hear that it being considered by some shareholders in West Seton that the late appointment of a committee without notice was scarcely in order, it is not improbable that a special meeting will be held. The next Banca sale of tin will take place on the 30th inst., when 18,000 slabs of Banca and 3000 of Billiton will be offered.

JAMES H. CROFTS.

THE WEEK.

SATURDAY, JAN. 5.—Grand Trunk securities have now receded to the level at which a recovery generally sets in. First Preference are 52, the second 52; and the third 16½. Royal Sardinian ordinary railway shares can be had at 2½, and the preference at 5. There was some buying to-day by small speculators of Chatham ordinary, now only 21, and Caledonian deferred, which can now be picked up at 12. Attention is being drawn to the fact that with an expenditure of two millions on home tramways, in addition to good dividends, the capital has increased in value to over three millions. In 1870 and in 1872 over two millions was lent to Costa Rica and Honduras, with very different results.

MONDAY.—We had firm markets for bonds and railway stocks. It appeared to-day to dawn on the minds of many that this week or early next week we shall have the dividends out of the Metropolitan, Brighton, and South-Eastern. On the first-named stock 5 per cent. is looked for, against 4½ per cent. last year, and there was a rise to-day of 1½ per cent. Royal Aquarium shares were dealt in at 3-18ths, Milner's were wanted at 7½, and West Cumberland Iron at 7. West Seton shares were quoted 5½, lower (10 to 15), and weakness was shown in Eberhardt. From a telegram received to-day the mine does not appear to be looking so well, and 2400l. will be wanted during the month.

TUESDAY.—Eberhardt had a considerable fall. Shares could be had at 7½, against 8½ yesterday, so closing 2s. lower. Richmonds were also dull at 8½, although the run (£100,000) exceeds all recent returns. Mr. Hyndman telegraphed from the Chicago Mine that he had settled with all the creditors. The shares remained dull at the nominal quotation of 1½ to 2. Van shares were weak at 30, and Great Laxey at 22. Consols rose ¼, and at one period of the day several railways were over 1 per cent. higher than yesterday, but they relaxed towards the close, when the dealers proceeded to make their books "clean." North British fell ¾ on the day; Wye Valley, 1½ to 2; Glenroy ½ to 1.

WEDNESDAY.—It appearing probable that an armistice between Russia and Turkey will shortly be arranged, the markets showed a firm appearance. Consols rose ¼, to 95½. Midland and Birmingham improved 1 per cent. The Metropolitan dividend was announced as 5 per cent., but the stock was unaffected. Van shares were offered at 2½, and Great Laxey at 22½. The usual quarterly dividend of 8s. will be paid here, also a bonus of 2s., making 10s. in all. Llanrwst, 1½ to 1¾. Aberdare, 2s. to 4s. Malabar, ½ to ¾. North Laxey, 8s. to 8s. Rookhope, 17s. to 19s. Derwent, 1½ to 2. Pandora, ¾ to 1; a highly important improvement has taken place at this mine, particulars of which have been notified to the shareholders. A recovery of 10s. took place in Richmond (8½ to 9).

THURSDAY.—The Bank of England directors reduced the rate to day to 3 per cent., the leading banks consequently only give 2 per cent. for money placed at call. Very few bills seem to be offering, and the recent dividends have loosened large sums of new money. Great Laxey shares showed a weak tendency, and were offered at 22, Roman Gravel being wanted at 3½. A transaction took place in the A. shares (30s. paid) of the Odessa Waterworks Company 4½. Hudson Bay shares were dealt in at 10½, General Credit at 6½, and Royal Aquarium at 3.

FRIDAY (Opening).—Russian, 1873, have advanced to 70½, but Consols are unchanged, and one or two railways are slightly lower. Districts, for example, not being better than 53½. In mining shares Tankerville are rather in demand at 4½, and Roman Gravel at 3½. Parys Mountain are offered at 9s. 6d., Llanrwst at 1½, and Great Laxey at 22. At yesterday's meeting of North Laxey shareholders the necessity was shown for 3000l. fresh capital being raised. The shares are quoted 28 to 30. The 10s. dividend has had a rise of ½, but are now the same as last night (95½ to 95½). The Manchester and Sheffield Railway dividend is announced as one of 4½ per cent., against 3½ this time last year. The stock is now 81½, after being 82½. Flagstaff are dull at 1½. Leadhills are quoted 4½ to 4½, and Hulton 4½ to 5. Wye Valley, 1½ to 2. West Wye Valley, ¾ to 1. Kapanga, 1 to 1½. Port Phillip, ¾ to ¾; the profit for the month ending Jan. 2 is stated to have been 1850l. Four o'clock.—The markets do not close at their best. Districts are ½ lower than last night, and Great Western ¾. Roman Gravel are rather better than in the morning. Rookhope, ¾ to 1. Parys Mountain, 9s. to 11s. Glenroy, 18s. to 20s. Fatsley Bridge, 3½ to 3½. It was understood that the Central Illinois Railway dividend will be 5 per cent. A dividend of 5s. per share has been declared by the John Croxley Company. Newport Abercromby Colliery, 4½ to 4½. Great Western, 2½ to 2½. Altam Colliery, 4 to 4½. Birchton-lane, Jan. 11.

FERDINAND R. KIRK.

THE VAN MINES—MONTHLY REPORT.

Jan. 9.—Seaham's shaft is sunk 11 fms. under the 105. The water and gas are very strong in the bottom. We expect to touch the main lode after another 4 fms. sinking. The 105, west of shaft, is communicated with the 65 winze sunk below the 90. We have commenced crossing north at this point in order to prove the width and value of the lode. The 105, east of shaft, is driving in the "bastard" by the side of the main lode, is now extended 26½ fms., and we have 9½ fms. more to drive to communicate with the 33 winze below the 90. We are cutting nine stones of ore occasionally. The said winze is now sunk 8 fathoms. The 90, west of shaft, is extended 105 fms.; we have a fine lode here now, worth 100 lb. of ore for the width carried 800 lb. per cubic fathom. The stopes in the back of this level, east and west of shaft, are on the average 27½ in. wide, worth for lead 27½, 10s. per cubic fathom. The 90 east and the 75 east are both driving by the side of the lode, with four men in each. The stripping of the lode to full width in the side of the 75 at 25 and 50 fms. east of shaft are worth respectively 12½, 10s. and 15s. per cubic fathom for lead ore. The 75, west of shaft, is driven 155 fms. The 90 winze sinking below this level is down 14 fms. 2 ft.; we expect we shall effect communication with the 90 this week. The stopes in the back of this level, east and west of shaft, nine in number, are worth on the average 15s. per cubic fathom; mean width, 14 ft. 6 in.

The 80, east and west of shaft, are both driving in the soft by the side of the lode. The stopes in the back of the 60, eleven in number, are worth on the average 18s. per cubic fathom; average width 16 ft. 6 in. The three stopes in the back of the 45 are worth 13s. per cubic fathom; mean width 15 ft. 6 in. The permanent levels are pushed forward as usual.—Surface: We shall start another crusher and dressing-machine on the halvan-floors next week. We have commenced building the home for the pitman at Seaham's shaft. Our four-weekly sale takes place to-morrow upon 500 tons of lead and 250 tons of blende.—WM. WILLIAMS.

CWM DWYFOR—SPECIAL REPORT.

Jan. 10.—In the 20 fm. level, 12 fms. 4 ft. 6 in. west of Stewart's shaft, and 29 ft. 6 in. west of the winze, the lode is about 18 in. wide, hard and compact, composed of quartz, sulphur, and blende, with spots of copper and lead ore; the ground is rather difficult to work, consisting of grit-rock. I have for the present suspended the driving of this level. In the 10 fathom level I have re-started on No. 3 the driving of the south cross cut, to two men, at 12s. per fathom. The lode in this level is split into two parts; judging from appearances, we consider the north and south parts will in a few fathoms driving west unite, when we may reasonably expect good results. I am driving on the north part, which is about 2 ft. wide, and contains a little lead, copper ore, and sulphur—a very promising lode. In extending this level west we shall gain back rapidly. The distance from the north part of the lode we are driving this level on to the No. 4 lode is about 8 fms., and we for lead ore for the width carried 800 lb. per cubic fathom. The stopes in the back of this level, east and west of shaft, nine in number, are worth on the average 15s. per cubic fathom; mean width, 14 ft. 6 in.

The 80, east and west of shaft, are both driving in the soft by the side of the lode. The stopes in the back of the 60, eleven in number, are worth on the average 18s. per cubic fathom; average width 16 ft. 6 in. The three stopes in the back of the 45 are worth 13s. per cubic fathom; mean width 15 ft. 6 in. The permanent levels are pushed forward as usual.—Surface: We shall start another crusher and dressing-machine on the halvan-floors next week. We have commenced building the home for the pitman at Seaham's shaft. Our four-weekly sale takes place to-morrow upon 500 tons of lead and 250 tons of blende.—WM. WILLIAMS.

por of how matters stand here. I only wish I had the pleasure of reporting a good discovery of mineral in the 20. I have great faith in driving the No. 3 west, but of course I am only giving my opinion, and I hope it will be taken as such; and let any independent inspector visit the mine, I feel sure he will fall in with my views relative to the western ground; and the only failure thus far from Stewart's shaft is by coming in contact with the slate vein which was met with in making the incline, which has disordered the lode. In the western section there is no slate, but a good-looking shale appears to lie on the hillside for a fair depth.—J. JEWELL.

FOREIGN MINES.

EBERHARDT AND AURORA.—Telegram from Captain Drake:—Length of tunnel, 2464 ft., mostly quartz, but barren. No change in the drift. Mine not looking quite so favourable. Want, January, 24/04.

CHICAGO (Silver).—Telegram from Mr. Hyndman:—I have settled with all the creditors, and appointed Daggett superintendent, at a salary of \$400 a month. Drawn 5000.

PHILIP AND COLONIAL (Gold).—Telegram, dated Melbourne, Jan. 8: Month ending Jan. 2.—Gold obtained from company's quartz, 641 oz.; gold obtained from tributaries quartz, 1291 ozs. Profit, 18517. Remittances, 12501.

RICHMOND CONSOLIDATED.—R. Rickard, Dec. 19: Since my last we have drifted 50 ft. in the 100 ft. level, the first 30 ft. were in very good ore, when it pitched to a width of 1 ft.; we have drifted the remaining 20 ft. in low grade ore and limestone, and the width of the first ore was as far as ascertained about 12 ft. wide. On the south-eastern end of this ore body we have made a rise about 30 ft. in very good ore. The slope in the back of the 400 is without change since last reported on. The drift from the western end has been extended 30 feet without any ore of value; this drift is being pushed on to communicate with the rise in the back of the 400 main drift for ventilation. Nothing is being done on the 400 main drift, but work will be resumed as soon as the rise (which is up 50 ft.) is holed to the drift from the slope. The 500 is still without ore, and the ground is a little easier for driving than it has been for some time. The 600 drift is still in limestone, and we are daily expecting to strike the quartzite. The winze on the fissure below the 900 is down 50 ft., and the ground very favourable for sinking. The furnaces are in good working trim; for the past week we melted in the three furnaces 1074 tons of ore and flux dust, being a little over 51 tons per day per furnace.

Telegram from the mine at Eureka, Nevada:—Week's run, \$100,000, from 130 tons of ore (three furnaces); week's produce of refinery, \$30,000.

DON PEDRO.—Mine captain's letter, dated Dec. 10: General Remarks: The ore has been derived from No. 8 new shoot, adit level, and No. 8 shoot north ground; the ore having been generally of very low quality.—No. 8 New Shoot, Adit Level: In No. 1 slope east the ground has been very hard for quarrying, and of very low quality, but gives strong indications of improving, as in the present end; the ground is easier for excavating, and presents a better appearance. In No. 3 slope a slight improvement is perceptible, the branches being larger, and more defined. In the south side opening from western stopes a little has been done in the bottom opening, but the ground is hard, and the clay branches small.

In the slope north from western stopes a small level has been started to explore the northern ground at this level. The stopes opened on south side of incline to Symon's shaft has produced some fair quality ore, but the branches are small and irregular in size and yield. In the stopes in the north ground going north but little has been done, as we holed to an old level in the back, which produced bad air for some days and prevented in some measure the prosecution of the stoping at this point. The bad air is now expelled, and the bottom branch presents a favourable appearance.

Prospect and Running Works.—Alice's Level: Two sets of laths, one lath being decayed and broken. We commenced opening Alice's West for stoping some of the yellow clay branches above. In No. 1 side level one reprieve set put it between the standing sets. In No. 6 shoot, in the back of the new level, a pillar of timber has been built at the higher extremity of the slope, and also the communication from these stopes to Alice's, as the timber was crushing badly, and might if not secured properly damage the level above. At the south side openings, from the incline to Symon's, a pillar of timber has been commenced to support the roof.

In the north ground the stopes are being filled with old timber and packed tight with debris to prevent a shrinkage. Preparation are being made to clear the 30 ft. level preparatory to driving the cross-cut to canoa stopes.—Dawson's Machinery: The bolts of the angle-bob in Alice's broke and caused some damage to the linings, 10 in. bucket changed twice, packed the pole once, besides many other minor repairs too small to merit special mention.—Permanent Pumping Machinery.—Bob-Plat: The 4th and last set put in and blocked up, and at surface 10 stands and runners made and fixed for carrying the launders over iron wheels; a number of pulley-stands or frames spurred, &c., and all other works in connection with the same advancing well.

MINEAL.—Dec. 22: Queen Tunnel: Good progress has been made this week in driving; no change to report. In the Cave the quartz has nearly all given out, and the men are engaged stopping the ground from the Queen Chambers (opposite the Cave), where a little ore shows itself. There is a large block of ground at this point, sufficiently large to contain quite a deposit, and bring on the line of the ore bodies; I think it advisable to prove it. For some days past I have been searching for a good place to sink in the Star to prove the bottoms of the old ore bodies. The Star and Troy Mines are now one, and apparently large bodies of ore have been taken from them both by the old company and the leasers, and I have decided to sink a winze in the north end of the Troy. At this point the ore body extends regularly all the way from the surface to a moderately defined wall. Moreover, this is the lowest place in the two mines (Star and Troy) at which ore was found, and I think it the best place we can choose to test the ground. There is a piece of ground on the western slope, opposite the Live Yankee and Mary Ann, and I am informed that the surface of it has never been prospected on account of its being covered with waste at the time it came into the company's hands. It is on a line with the Star outcrops, and is reported by old workmen to be exceedingly promising. I have put two men on it to remove some waste, so as to give a shallow level for prospecting purposes. Our new extension of tunnel will pass somewhere under this piece of virgin ground, so that if we cut anything near the surface we can follow it down to the tunnel.

EBERHARDT AND AURORA.—Capt. Drake, Dec. 15: Tunnel: During the last month we have been running in a very different formation from any that we have previously met with. You have been very generally informed as to the character of the rock we have run through in the driving of the tunnel, or at least up to the time we came upon the quartz. We ran into a broken loose material of some spar and fragments of quartz, which continued in the course of the Tunnel for about 100 ft., then the material became much harder, and in fact very difficult ground to work, the lode rock and spar lying in all conceivable positions broken and twisted altogether, with no stratification whatever. This character of ground continued for about another 100 ft., at which point the spar began to predominate and assume more of its regular position, running slightly to the west of the course of the Tunnel, with an inclination to the west of about 45°. I should like very much to start a drift east and west, and to cut through the body of spar to determine what there is lying in proximity to it, but as the funds of the company are being drawn upon so heavily it is doubtless better to continue on with the Tunnel until we reach the ground under the Eberhardt Mine. Altogether I do not think that our present outlook is in any way discouraging.

Drift in the Quartz. We commenced this work on Nov. 14, and have continued the same to this date, with only one shift (three men), two miners, one drill-sharpen, and one carman. The rock is exceedingly hard, and they have made but small progress. Mr. Maxwell as well as myself have taken samples of the rock for assay, with the following results:—Oct. 25, \$4.70 trace, and \$6.28; Nov. 1, \$4.70; Nov. 15, \$4.70; Nov. 16, \$17.27; Nov. 17, \$3.14, \$1.56, \$1.56, and \$2.34; Nov. 28, \$3.14, \$15.71, and \$11.46; Nov. 30, \$1.56, Trace \$4.70, \$3.14, \$4.70, and \$3.14; Dec. 2, \$5.45, \$4.70, \$3.14, \$7.25, \$11.76, \$4.70, and \$4.70. You can readily see by the above that the quartz from the drift contains but a small amount of silver; yet the quartz in appearance looks well, closely resembling the ore in N. A. and W. B. Mines; it carries a small percentage of lead and a very little would be free milling. I have great faith in our prospects, and believe we will yet be able to find a body of pay ore. Everything looks favourable, and we must soon strike it. Of course I may be disappointed in this; but I think not.

The course of the ore body we have crossed at intersection of tunnel is north 25 west, with a pitch or incline to the west of about 60°, whether this will prove to be the correct pitch and course of ore channel I am unable to say, as there has not been work enough done upon it to fully demonstrate it; we have driven about 8 ft. from the tunnel, and at right angles to it, and have not gone through the quartz; when we had drifted about 4 ft. and have not gone through the quartz lying in the back or top of the drift which we came upon some decomposed quartz by following this upward it will lead us into better ore. I have just commenced this rise, so I cannot note any change. This ore was out at a depth of about 400 ft. from the surface, as well as being the only body of ore that has ever been found at this depth in any mine in this district. I think that it encourages us to believe that we may strike other bodies in the course of our tunnel. I have great faith in the future of this enterprise. Quite a large amount of ore was taken out of this section of ground, we are now passing through in 1869 and 1870, and there is still remaining a grand prospect. I shall expect to strike under this ore in our tunnel within the next 300 ft., and I believe the spar we have in the face of the tunnel will lead us into it.

Mine: This is a point upon which I would gladly convey to you its exact conditions; but it is impossible to do so, all I can do is to state how it looks at this date of writing, for the changes in the last six months have been so extremely puzzling, and seemingly contradictory, that I have had to exercise great precaution, both in my letters and cablegrams to the company, from fear they might cause very unsatisfactory movements in our stock. I have felt confident, however, that everything would come out all right; at times it has looked very discouraging, both in the old ore chambers and the incline. At this date the ore chamber is looking very well, so much so that I have great confidence that the ore body will continue to enlarge into a good supply for the mill next spring, though how long a run I cannot at present say. I am pleased to say the quality is good, we now have assorted some 400 tons that will assay over \$50 per ton. I believe this ore will make back west to our footwall, and at a greater depth than we have ever yet taken out ore.

Incline: There is nothing material to add to what I have already reported. At the depth of 1408 ft. finding no wall, I determined to suspend the sinking and drive a drift east until found. The drift has now been driven 120 ft., and is still in the west lime rock, and yet no signs of the wall. This fact is rather discouraging, but we think it advisable to continue this driving until the wall is reached; as it is, at the present time I have no guide for the sinking of the incline. I, however, hope to be able to very soon report that we have met with a change.

NEW BENSBURG.—Charles Craze, Jan. 7: Victoria shaft was sunk 6 ft. last month, and is now 6 ft. below the 22. In the last week we have had some fine rocks of lead out of this shaft, and from the appearance of the lode at present, one would judge we were driving a good bunch of ore. The 22, west of shaft, was driven in December 1 ft. 5 in., and in 5 ft. from the 22, west of shaft, was driven the lode here is still producing a little lead, which we have been getting for some time past; however, I hope it will improve again soon, as we are getting under the point where we had some very good lead in the bottom of the 14 west. We did not drive much in the cross-cut north behind this end last month while it was of no value. The 22, east of shaft, was driven 2 ft. 2 in. in last month, but the ground here is very disordered, and is composed of limestone with a mixture of iron and pyrites. I have, therefore, placed the men to drive further north, where the ground is more settled, and contains spots of lead. The 14 east was driven 4 ft. 6 in. in the month; it carries a little ore here, but not of any value. The stopes in the back of the 22 are not producing so much ore as the lode did in the level; and there is much more pyrites in it as we get above the level, which makes the

stuff difficult to dress. I think, therefore, we had better not do much in the dressing department until we have our new pneumatic stamp here, which I am advised was sent from Liverpool on Saturday last, when I hope we shall be able to reduce the stuff to a sufficiently fine size to make a better separation. In the meantime, I purpose to let the men sink a winze in the bottom of the level, to prove the value of the lode about 10 ft. west of shaft.

PESTARENA (NITRE).—The following are the returns for the month of December:—From Val Toppa district, 187 ozs. 9 dwts. 18 grs. of gold, obtained from 451 metric tons of ore; yield per ton, 6 dwts. 23 grs. From Pestarena district, 183 ozs. 2 dwts. 14 grs. from 183 metric tons of ore; yield per ton, 1 oz. 0 dwts. 04 grs. Total from the two districts, 340 ozs. 12 dwts. 8 grs. from 634 metric tons of ore amalgamated.

PONTGIBAUD.—Jan. 1: Roure Mine: The engine shaft has attained the depth of 25 metres below the 150; we have now to sink for tip-plate before cutting it. The 150 metre cross-cut west has entered easier ground, but it still continues to let out water. The 100 cross-cut east is still in hard ground, consequently our progress is slow. The 80 metre level, south on Virginia's lode, is a kindlier, but is still unproductive. The same level north has yielded ½ ton of ore per current metre, but is now temporarily suspended to hole a rise behind the end to the level above for ventilation, which is much needed. The 60 metre level north has entered the ore ground; worth ½ ton per metre. The 40 in the same direction has opened ground worth 1½ ton of ore per current metre during the past month. The present end yields 1 ton. We have set a rise behind this end to communicate with the winze from the 20, which will lay open a good piece of ground for stoping.

The 20, both north and south of cross-cut on the eastern part of the lode yields ½ ton of ore per current metre each end. The same level on the counter lode is unproductive. The winze below the adit on the eastern part yields ½ ton per current metre. The adit north on Virginia's lode yields ½ ton of ore per current metre. The mill shaft has attained the necessary depth for the 40 metre level, and plat set to cut.—Mioche: The ground in the adit cross east is harder, consequently our progress is not so good.—La Brousse: The 140 metre level, south of Basse's shaft, is without change, yielding a little ore. The 120 metre level south yields ½ ton of ore per current metre. The 100 metre level is in favourable ground for driving, but the lode is poor. The winze behind this end yields ½ ton of ore per current metre. The lode in the 80 east south has improved in appearance, now yielding orestuff for a width of 1 metre. The sinking of the new engine-shaft has commenced below the 60 metre level in favourable ground. The rise towards this point from the 125 is still in hard ground.—Pranal: We have cut the lode in the 110 cross-cut at St. George's shaft, which let out a large quantity of water and gas, and for the time drove our pumps, but we are now again in a fair way of forking, and hope in a few days to be at work again. The 90 metre level north is unproductive. The same level south yields ½ ton of ore per current metre. The 80, south of Grange's winze, opens good ground; worth 1 ton of ore per current metre. The same level south yields a little saving work. The 70 metre level north yields ½ ton of ore per current metre. The same level south is unproductive. The 50 east both north and south yield a little saving work of low quality.—Surface: During the past month the weather has continued favourable, and our samplings have amounted to 282 tons.

FORTUNA.—Dec. 20: Canada Inco's: The lode in the 120, west of O'Shea's engine-shaft, has slightly improved, and yielding some very good stones of lead ore, worth ½ ton per fathom. In the 110, west of Judd's, the lode is variable, and the ground much harder, but producing ½ ton per fathom. In the 90, east of San Carlos, holding to an air shaft has been completed, and the men put to drive north of the lode. The lode in the 40, west of Abercrombie's, is improving in appearance, and the ground easier for driving through. In the 50, west of Abercrombie's, the lode has entirely fallen off in value during the past few days. The 50, east of Abercrombie's, continues to open tribute ground valued at ¾ ton per fathom. The men formerly driving the 60, west of San Pedro, have now been engaged driving a short cross cut north under Abercrombie's shaft. The lode in the 70, west of San Pedro, is very small and unproductive. In the 80 cross cut, south of San Pedro, the lode has been intersected, and driving commenced east and west on its course, yielding 1 ton per fathom. In the 70, east of San Pedro, there is a large strong lode, yielding 1 ton per fathom, or worth 1 ton per fathom. The lode in the 120, east of O'Shea's, is disordered by cross joints.

In the 90, west of Kennedy's, the lode is still large, but much harder than it has been for some time. The 100, west of Lowndes', is passing through a hard bar of unproductive ground. The lode in the 100, east of Lowndes', is larger and more kindly, showing occasional spots of lead ore. In the 90, east of Caro's, the lode is compact and very regular, opening good tribute ground, producing 1 ton per fathom. No lode has yet been met with in the 80, east of Santo Tomas shaft. In Abercrombie's shaft, sinking below the 50, the ground is much harder for sinking. The lode in Christina's winze, below the 90, is small, and the ground hard. In Paez's winze, below the 40, the lode has slightly improved in value, yielding ½ ton per fathom.

Los Baldios: In the 130, west of Buenos Amigos Shaft, there is scarcely any lode to trace, and the ground hard. The lode in the 120, west of Buenos Amigos, is small and unproductive. In the 130, east of Morris's, the lode is wide, and is intersected with lead ore, yielding ½ ton per fathom. The 120, east of Cox's, continues to open up splendid tribute ground, valued at 2 tons per fathom. The lode in the 110, east of San Miguel, is split into valueless branches. In the 15, west of Swaffield's, no lode has been met with west of cross course. The lode in the 65, west of Swaffield's, is very small and poor, and the ground hard. In the 65 ft. level, west of Palgrave's, some good lead ground has been driven through the fortnight, but is at present poor. The lode in the 65, east of Palgrave's, has fallen off in value during the past few days. In the 35, east of Palgrave's, the lode is large and open, and easy for driving through, producing 1 ton per fathom. At Morris's shaft, below the 130, the men are working well in the sink. Negro's winze, below the 55, is laying open a very fine piece of lead ground.

ALAMILLOS.—Dec. 20: The lode in the 40, west of San Felipe shaft, is more open, but does not contain lead enough to value. The 20, west of San Felipe, is opening a good length of stoping ground. The lode in the 25, west of Abercrombie's, is strong, and producing a little lead ore. In the 40, west of Abercrombie's, the lode has again declined in value, but is now worth ½ ton per fathom. The lode in the 100, east of Taylor's, is very hard for driving, and worth ½ ton per fathom. The lode in the 100, west of Taylor's, is large and open, yielding 1 ton of ore per fathom. In the 85, west of San Adriano, the lode is unproductive, but the ground is favourable for driving. In the 60, east of San Victor, the lode will soon be intersected east of the cross-course. The lode in the 70, east of San Victor, is of no value. In the 60, west of San Victor, the lode became poor a few days since. The lode in the 70, west of San Victor, has a promising appearance. In the 30, east of San Carlos, the lode has fallen off a little in value, and now worth 1 ton per fathom. In the cross-cut, south of San Carlos, there is no change. From the 30, east of San Jose, the men are driving north to intersect the lode, which is heaved in that direction by the slide. The lode in the 40, east of Judd's, has increased in value, and now worth 1 ton per fathom. In the 50, east of Judd's, the lode still produces good stones of ore, valued at ½ ton per fathom. The lode in the 70, east of Judd's, is strong and promising, and yields 1 ton per fathom. The 50, east of Judd's cross cut, has communicated with the level west of Sanchez's winze. The 50, west of Sanchez's winze, is holed to the last named level, and has ventilated and laid open a valuable piece of ground. The 50, west of Judd's cross-cut, is being pushed on as fast as possible to the level of Sanchez's winze, and worth 1 ton per fathom. Placido's winze, sinking below the 50, contains small and poor lode. The lode in Leon's winze below the 40 has decreased a little in value, and yielding 1 ton per fathom. In Losano's winze below the 65, the lode contains a little lead.

NEW ZEALAND (Gold).—On Saturday last some gold-bearing quartz was shown in Pictou from the prospecting claim at Golden Point, and it rivalled in richness the produce of the most celebrated claims on Nuggetty and Eagle Hawk Reefs, Tarrangower, Columbian Reef, Inglewood, or the Cross Reefs, Pleasant Creek, in Victoria.

Higher testimony than this cannot be accorded, but the specimens shown fully deserve all the good that can be said of them, for some of the stone appears to be just hanging together with bands of gold, and it is hard to determine in some places whether gold or stone most predominates. The proprietors of the claim allege that on the face of the quartz, as left at the latest working, the gold appears as thickly studded as it does in the valuable specimens obtained. We have no reason to doubt the correctness of this assertion, and may readily believe that the value of the find has not been exaggerated, in which event the proprietors of the claim may be congratulated upon the discovery of a most valuable property. The importance of the discovery to the district cannot be over estimated, as it will probably be the means of opening up a large extent of ground that will give employment to a number of miners, who will bring to light a quantity of gold treasure that now lies hidden in the earth. We trust our prognostications will prove correct, and that the claims at Golden Point will turn out equal to the expectations of their fortunate possessors.—*Marlborough Press*, Nov. 17 [In reference to the foregoing paragraph a New Zealand correspondent writes:—"I think if you could see some of the stone lately produced from my old claim at Golden Point you would be more anxious than ever to get to work on the Ravenscliff Company's property. I will send you a newspaper with the paragraph, which in no way exaggerates."]

STOCK EXCHANGE PRICES.—It is, probably, difficult to suggest any better guide to investors seeking information as to the relative stability of any given securities usually dealt in than that offered by tables of Highest and Lowest Stock Exchange prices, for, as a general principle, it is not unreasonable to assume that those securities which have violently fluctuated during one year are liable to similar fluctuations during the next; and, inasmuch as these fluctuations represent how much may be gained or lost by successful or unsuccessful speculation, there will be little difficulty in estimating therefrom the chances of profit and risk of loss resulting from any particular transaction. Appreciating the great value to capitalists of such tables, Messrs. W. J. TALLANTIRE and Co., stockbrokers and share-dealers, of 20, Change Alley, Cornhill, have prepared, for the use of those doing, or proposing to do, business through them, a handsome set, showing the highest and lowest prices quoted in each month of 1877, and the highest and lowest prices of each of the five previous years. Messrs. Tallantire also give tables for the same periods showing the dividends paid upon each security. The figures show some very curious facts. Taking the mines, it is shown that in each of the last five years the Cape Copper Company has given its shareholders dividends amounting to 4s. upon each share, yet at the highest price paid, on April 10, investors seemed inclined to pay but 41s. 10s. per share, thus demanding nearly 10 per cent. for their money, and at the lowest quotation, 31s. 15s. on Nov. 22, the Cape Copper Company yielded as an investment nearly 12½ per cent. per annum. Yet another mine, the Van, ranging at about the same quotations per share, shows very different results. The dividend paid per share in each of the past five years averages 2s. 16s., yet the Van shares were quoted 39½ on Jan. 12, at which price the investor would receive but slightly more than 7 per cent. per annum for his money, whilst even the

lowest price of 22½ on Dec. 21 would yield the investor less than 10 per cent. for his money. Almost innumerable comparisons of this kind might be made, but these will suffice to show the value of the tables. The tables are beautifully printed on drawing paper, and every intending investor should put himself in communication with Messrs. Tallantire in order to secure the presentation of a copy.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

STANTON IRONWORKS COMPANY (Limited).—Capital 600,000l., in 1000 shares. To acquire and carry on the working of the following properties:—Stanton Ironworks, Derbyshire; Dale Colliery, Derbyshire; Teversall Collieries, Nottingham; Pleasant Collieries, Derbyshire; Desborough Iron Ore Works, Northamptonshire; Ironstone Mines, parish of Finedon; and the Ironstone Mines, Wellingborough. According to agreements made between J. G. Crompton, George Crompton, C. B. Newton, and J. F. Barber of the one part, and J. Barber and B. Lucas of the other part. The subscribers are—J. G. Crompton, Derby, 1000; G. Crompton, Chesterfield, 1000; N. C. Curzon, Lookington, Derby, 50; B. Lucas, Hasland, Derby, 50; J. T. Barber, Derby, 50; C. E. Newton, Micklethorpe, Derby, 100; John Barber, Derby, 100. The directors are—Messrs. J. G. Crompton, G. Crompton, J. T. Barber, Charles Schwind, Cecil Palmer, John Hickman, and W. Clark, the qualification being 50 shares.

PERAK ESTATES AND SUGAR COMPANY (Limited).—Capital 500,000l., in 1000 shares. To carry on business as sugar planters and manufacturers in the Straits settlement. The subscribers are—Charles Garnett, Bonhill House, Tamworth, 1000; Robert Garnett, Bonhill Lodge, Tamworth; Herbert Garnett, Bonhill Lodge, Tamworth, 500; W. T. Spall, the Elms, Torquay, 1000; R. Campbell, Loundes-square, 2000; H. Garnett, Wyresdale, Lancashire, 500; W. Davis, Bridgend, 500.

COTTON BROKERS' BANK (Limited).—Capital 50000l., in 1000 shares. To carry on a banking business at Liverpool in connection with the Cotton Brokers' Association. The subscribers (who take one share each) are—H. C. Lane, 25, Exchange Alley, Liverpool; John Given, Tithebarn-street, Liverpool; Robert Hinchaw, Liverpool; H. H. Hornby, Liverpool; J. B. Morgan, Liverpool; H. H. Nicholson, Exchange Buildings, Liverpool; B. Rathbone, Exchange Buildings, Liverpool; G. H. Robertson, Brown's Buildings, Liverpool.

CIVIL SERVICE MUTUAL FURNISHING ASSOCIATION (Limited).—Capital 50,000l., in 1000 shares. To supply furniture upon the hire system, or otherwise. The subscribers (who take one share each) are—J. W. Williams, Marlborough road, Holloway; W. Wellington, St. George, Manchester-street, W.; W. H. W. Buxton, the Avenue, Acre-lane; J. M. Wilson, Finbury-place, South; W. S. Ferguson, Peckham Rye; W. Conway, 71, Chancery-lane; J. J. Shore, 30, Castle street, Holborn.

WEARMOUTH COAL COMPANY (Limited).—Capital 312,000l., in 1000 shares. To acquire the business of the Wearmouth Coal Company for the price of 286,000l. The subscribers (who take one share each) are—W. Stobart, Wearmouth Colliery, Sunderland, 100; T. C. Thompson, Ashdown Park, 100; C. R. Fenwick, Abchurch Chambers, E.C., 100; Thomas Chilton, The Elms, Gursford, Wrexham; C. W. Bell, Bumblehurst, 100. The directors are Messrs. T. C. Thompson, W. Stobart, C. R. Fenwick, C. W. Bell, T. Chilton, and W. T. Bell, the qualification being shares to the value of 5000l.

FALSBOMETER ENGINEERING COMPANY (Limited).—Capital 50,000l., in 1000 shares. To acquire the business carried on by J. E. Hodgkin and M. Newhaus, at Queen Victoria-street and Battersea. The subscribers (who take one share each) are—M. Newhaus, 61 and 63, Queen Victoria-street; S. L. Howard, Loughton, Essex; J. E. Hodgkin, Queen Victoria-street; A. Waterhouse, 20, New Cavendish-street; John Head, Ipswich; J. Hodgkin, New Cavendish-street; J. B. Hodgkin, Durlington.

WINGATE LIMESTONE COMPANY (Limited).—Capital 40000l., in 4000 shares. To work limestone quarries on the Wingate estate, Durham. The subscribers are—W. O. Wood, Coxhoe, Durham, mining engineer, 90; R. Terens, Oswald House, Durham, coal merchant, 100; J. Hutchinson, Durham, land agent, 100; J. G. Blumer, Darlington, merchant, 100; L. Blumer, Darlington, engineer, 80; J. H. Ball, Darlington, newspaper proprietor, 40; R. Brewis, Durham, shipowner, 10. The directors are Messrs. W. O. Wood, J. G. Blumer, Luke Blumer, the qualification being shares to the value of 300l.

LOCKETS' MERTHYR STEAM COAL COMPANY (Limited).—Capital 60,000l., in 6000 shares. To acquire and work the Mardy Colliery, parish of Ystradgynaf, and Aberdare, Glamorgan. The subscribers are—E. J. Judkin, 18, Upper Thames-street, coal merchant, 20; H. J. Birbeck, 11, Rosbury Villas, Tollymore Park, accountant, 4; G. E. Wood, Coal Exchange, coal merchant, 10; R. Jones, Haswell-terrace, Cardiff, coal merchant, 20; W. Thomas, Aberdare, mining engineer, 12; George Lockett, 18, Upper Thames-street, coal merchant, 20; G. R. Carter, 116, Fenchurch-street. The directors are Messrs. E. S. Judkin, Rees Jones, G. E. Wood, the qualification being shares to the value of 5000l. The office is at 18, Upper Thames-street.

Date.	Mines.	LEADS.	TONS.	Price per ton.	Purchasers.
Jan. 10	Leadhills	50	211	3 0	Nevill, Druce, and Co.
—	ditto	50	11	4 0	ditto
—	De Broke	20	11	6 0	ditto
—	Talargoch	—	—	—	—
—	Maes-y-weddu	65	12	5 6	Adam Eytton.
—	Coetla Llys	35	12	10 0	Walker, Parker, and Co.
—	North Hendre	50	11	16 0	ditto
—	ditto	50	11	17 6	Adam Eytton.
—	ditto	50	11	17 6	Walker, Parker, and Co.
—	ditto	50	11	18 6	Adam Eytton.
—	ditto	50	11	17 6	Walker, Parker, and Co.
—	ditto	30	11	17 6	ditto
—	ditto	20	15	0 6	Sheldon, Bush, and Co.
—	Wagstaff	16	10	10 0	ditto
—	Cwt Militia	9½	11	1 0	Walker, Parker, and Co.
—	Grosvenor	5	11	7 6	ditto
—	Rhyd Alun	5	11	5 0	ditto
—	ditto	5	11	6 0	Adam Eytton.
—	Victor	5	11	1 6	ditto
—	Van	50	12	1 0	Nevill, Druce, and Co.
—	ditto	50	12	2 0	ditto
—	ditto	100	12	19 0	ditto
—	ditto	75	12	0 0	Panther Lead Co.
—	ditto	25	12	0 0	Sheldon, Bush, and Co.
—	ditto	50	12	0 6	Weston, Fon, and Co.
—	ditto	50	12	7 6	ditto
—	ditto	50	12	6 6	ditto
—	ditto	100	12	9 0	St. Helen's Smelt. Co.
—	Tankerville	100	12	9 0	George Barr.

BLENDE.				
Date.	Mines.	Tons.	Price per ton.	Purchasers.
Jan. 9	Talargoch	100	2 16 0	Kenrick and Son.
—	ditto	50	3 13 0	ditto
—	ditto	50	3 15 0	Bagillt Smelting Co.
10—	Van	150	2 11 0	Vivian and Sons.
—	ditto	50	2 11 0	Dillwyn and Co.
—	ditto	50	2 11 0	Richardson and Co.

COPPER ORES.

Sampled Dec. 19, and sold at Tabb's Hotel, Redruth, Jan. 3.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Mellancarr	78	£3 10 6	West Seton	7	£2 6 0
ditto	74	2 5 6	East Pool	54	3 14 0
ditto	72	3 13 6	ditto	34	3 3 6
ditto	70	3 7 0	ditto	28	2 12 0
ditto	69	3 8 6	ditto	28	2 12 0
ditto	63	3 0 6	Levant	45	7 15 0
ditto	44	9 0 6	ditto	44	7 15 0
ditto	41	6 12 6	ditto	43	7 14 0
ditto	37	6 12 6	ditto	2	26 10 0
West Tolgus	8	7 11 6	South Crofty	56	2 18 0
ditto	55	9 2 0	ditto	54	2 0 0
ditto	54	5 12 6	Carn Bre	20	1 18 0
ditto	49	4 7 0	ditto	19	3 16 0
ditto	40	8 17 6	Wheal Comford	38	4 5 6
ditto	34	4 7 6	Killifreth	24	3 12 6
ditto	43	4 0 0	West Boskear	21	1 12 6
ditto	35	4 15 6	Stephens's Ore	12	0 10 0
ditto	28	4 18 6	Wheal Grenville	10	5 16 0
ditto	24	3 19 6			

of ore
27, 100
drive
wide,
men,
The w
is 3 ft
level,
and w
rise a
fm. le
47, 103
shall s
MO:
with a
12 on
we hav
account
is the
this we
cut. T
MO:
and w
doing s
ge dow
NEW
gives m
siderab
fully &
to day,
is exten
prosper
NEW
to report
are near
NOR:
down a
ported,
of being
the lode
main lod
The lod
through
NOR:
terday;
ges; no
w'd., and
a strong
well ind
expect th
re, the m
two men
PAN:
thing in
making
stopes we
lead and
have now
see the N
day's Lod
there bel
north fro
proved, a
ing in thi
driving ne
on the ne
fathom.
In the d
continues
making g
intent say
we have le
PAR:
times me
ing. The
per fatho
re, the m
making a
worked by
This work
thing for
PATE:
balance-b
to do any
looking ap
re, the m
a new one
be cut to n
PENHA:
been cut b
thrown up
tinstuff.
\$1. per fath
45¢ per f
at presen
PENNA:
ing the sh
favourable
down the n
The rise in
presenting
in the cro
dining the
9 tons 2 cw
FLYNLL:
the bottom
sent end; v
the bottom
the 48. In
dancing low
also produc
twitched up
but is now
Owing to t
end's we are
with a chan
draught in
winze, we h
fill 1 ton
per fathom
for consid
over the 24,
of the 12; it
rations are b
in fair work
are due at y
PRINCE
of the Vig
missing. I
with the de
bottom of t
adit west be
ROMAN C
is worth $\frac{3}{4}$ t
north of thi
shaft, is wor
1 ton per f
1 ton per f
No. 3 stopes,
of new engi
per fathom.
In the 80, so
2½ tons per
2 tons per f
1½ ton per f
also produc
about 3 fms.
of Stokes' w
and worth qu
Roman lode,
on the west p
2½ tons per
In the bott
No. 2 stopes,
per fathom.
The south
value. The
fathom. The
1½ ton per
south also w
We purpos
ROOKEHO
men, &c. W
com. consti
price for the
is hard, I
better ore in
over the 25 (d
24s. per fath
level, is stand
per fathom.
proved consi
ward of 2 f
level—I did n
want of dead
not much wor
tramway to G
mine to fill up
ing had we be
settling report
each per fath
engine shafts

£2 : 15 : 0.

made. The costs were charged up to Nov. 10. The tin sold realised 1706l. The prospects of the mine, especially about the 60, which is in whole ground, with two good levels cut, are considered favourable. At Levant meeting a loss was shown of 293l. on four months working, and a debit balance of 1250l. carried forward. Cook's Kitchen, 13 to 24. Penstruthal, 5s. to 7s. 6d., and enquired for. South Condurrow, 9 to 9½; South Crofty, 10 to 12; South Frances, 2½ to 3; West Frances, 3½ to 4; West Godolphin, 1 to 1½; Wheal Azar, 4 to 4½; Wheal Bassett, 10 to 12; Wheal Grenville, 2½ to 3; Wheal Kitty (St. Agnes), 2 to 2½; Wheal Pevor, 6 to 6½; Wheal Uny, 1 to 1½.

COPPER MINES show no change, and scarcely any business transactions. Devon Great Consols are quoted 3 to 3½; in Richards' shaft, 300 fathoms deep, the lode has been cut into 3½ ft. wide, composed of capel, quartz, and a little mundic, and driving has been commenced upon it east and west. At the 190 on new south lode at Wheal Emma a cross-cut was put out 5 ft. above the bottom, and the south part on the lode has been intersected 7 to 8 ft. wide, worth 5 tons of copper ore, or 15½ per fathom. Wheal Crebor, 15s. to 20s.; the lode in the 120 east is 7 ft. wide, worth 20½ per fathom. The stopes are worth 10½ per fathom each. Parys Mountain, 9s. to 10s., and rather more in request. East Caradon, ½ to 1½; Ganton, 2s. to 4s.; Hingston Down, 4s. to 6s.; West T.igus, 75 to 80; Prince of Wales, 3s. to 5s.; South Caradon, 85 to 90. West Seton, 6 to 8; the lode in the 140 west has improved to 5 ft. wide, and worth 12½ per fathom.

LEAD MINES have been moderately dealt in, and one or two have been more in request, but here again there is no general business doing, and our prices are for the most part nominal. Great Laxey, 2½ to 22½; the directors have declared the usual quarterly dividend of 8s., and a bonus of 2s. per share (7500l.) North Laxey, 6s. to 8s.; it has been left to the directors to raise in the best way they can the sum of about 3000l., to give the mine a further trial south. Particulars of the meeting will be found in another column. Glenroy were in demand at 17s. 6d. to 22s. 6d. Van, 29 to 31; the sale of lead ore this day (500 tons) realised 6175l., and 250 tons of blende 637l. 10s.; total, 6812l. 10s. East Van, 3 to 3½; D'Eresby, 50 to 60; Grogwinion, 3½ to 4½; Leadhills, 4 to 4½; Herodsfoot, 10 to 12; Ladywell, 1½ to 1½½; Llanrwst, 1½ to 1½½; Pateley Bridge, 3½ to 3½½; Pandora, ½ to 1; Roman Gravelly firmer at 8 to 8½; Tankerville better at 4 to 4½; the sale of ore for the month, 100 tons, realised 1245l. The 192, west of shaft, is worth 1 ton of lead per fm.; the 192 east, 1 ton per fm. The 192, east of Hotson's winze, is worth 5 tons per fm. Rookhope in better demand, at 17s. 6d. to 20s. Temple, 2½ to 2½½; West Chiverton, 13½ to 14½; West Pateley Bridge, 2 to 2½; West Tankerville, 15s. to 20s.; Wye Valley, 1½ to 2; West Wye Valley, 3½ to 4. Gorsedd and Merilyn, 5 to 5½; the accounts to Dec. 31, charging costs to the 22nd of that month, show, we understand, a profit of 3011l. 15s. 9d. Pennant, 4½ to 5½; Great Holway, 5 to 5½; New Bronfloyd, 2 to 2½.

IN FOREIGN MINES Argentine are 2 to 2½; Blue Tent, 3 to 3½; Condes, 2 to 2½; Hultafall, 5 to 5½; Chontales, 12s. 6d. to 15s.; Eberhardt and Aurora, 7½ to 7½½; Flagstaff, 1 to 1½; Frontino and Bolivia, 2½ to 2½½; New Zealand Kapanga, 1 to 1½; Last Chance, ½ to 1; Malpasco, ½ to 1; Malabar, ½ to 1; New Quebrada, 2½ to 2½½; Pestarens, 5s. to 7s. 6d.; Port Phillip, ½ to 1; Richmond, 8½ to 8½½.

The Market for Mine Shares on the Stock Exchange has shown much less animation than would have been anticipated, considering the vastly better feeling existing as to the political prospects, coupled with a better opinion as to the future of metals, so that it may be hoped that the increased activity is only deferred. The Flagstaff directors' quarrel is, temporarily at least, at an end, the new board being chiefly American. It was stated last week by a correspondent that it was expected that the Great Laxey dividend would be less than usual, owing to the stocking of the ore. The first portion of the statement is inaccurate, the directors having forwarded us an official announcement, on Wednesday, that they had that day declared the usual quarterly dividend of 8s. per share, and a bonus of 2s. per share (both free of income tax), payable on and after Jan. 23.

It is frequently stated that the men who make most money by mining are those who have the courage to abandon worthless mines when they are unfortunate enough to be connected with them, and rely upon general averages to make up the apparent loss thus incurred; but it appears the North Laxey shareholders have yet to learn this useful lesson. The directors in their report, submitted on Thursday, state that "the larger the capital laid out on the mine the smaller have been the returns," in addition to which the secretary states that the company has been six times reconstituted in his office, has expended in the vain hope of success not only 100,000l. of capital, but 50,000l. obtained from returns, and the shareholders have been paying secretary's salary, office expenses, directors' fees, and various other fixed charges for 30 years, yet have never obtained a shilling profit. The mine has now been inspected by Capt. Plummer (a competent agent recommended by Messrs. John Taylor and Sons), and his report may be summed up in a few words. The mine is at present worthless, but there is ground which is worth exploration which will cost 2800l. He highly compliments the present manager—Capt. Rowe—in stating that "there has been an immense amount of work done at the mine, and well done." In addition to the machinery and plant, there are good buildings all conveniently placed, and he thinks that due economy has been observed. All they want is richer veins (rather a satirical observation), and when the trials recommended are made he dares say they will find themselves in a much better position. All reasonable men would interpret this to mean that the local management has done its best, but that the concern is a failure; but the secretary and London directors seek to reverse this decision, throw the blame of the mine's poverty on the manager, and raise more money to send after the other. It is a rule almost without exception that in the vicinity of a rich mine no other rich ore deposits are found, and hence it is that millions have been wasted around Devon Great Consols, and no doubt will be around Great Laxey, although the expenditure of the same amount elsewhere would yield large profits. In the face of all this the North Laxey shareholders, on Thursday, determined to authorise the directors to raise an additional 3000l. to test Captain Plummer's recommendations, though it was plainly stated that there was suspicion of secret negotiations, not in the interest of the company, having been carried on between the secretary and certain individual main shareholders, that the London directors had not acted in a mainly way either towards their colleague in the island or the local manager, and that if the management were changed a large number of independent shareholders would withhold their support. It was asserted, moreover, that one of the main shareholders had actually stated that his object in recommending change of local management was to create a rise in the price of shares in order to sell his own. Such a state of things as this is not conducive to the welfare of legitimate mining, which is really highly profitable, but there is an old maxim that when certain persons fall out others obtain their rights. North Laxey shareholders will no doubt well consider the course it will be most reasonable for them to adopt.

Richmond, 8½ to 8½½; the usual weekly telegram gives the week's run at 100,000, from 1130 tons of ore, with three furnaces. This is about the largest weekly yield yet reached. During the week the refinery produced 50,000. The manager reports that the 600 drift is still in limestone, and they are daily expecting to strike the quartzite. The winze on the fissure below the 900 is down 50 ft., and the ground very favourable for sinking. The furnaces are in good working trim, and during the preceding week they smelted in the three furnaces 1074 tons of ore and flue dust, being a little over 51 tons per day per furnace. A local paper states that the Richmond Company are trying an experiment with an article of soapstone from South Carolina, but the writer evidently knows nothing of the material he is writing about, which accounts for his observation as to the Pancake fire rock "filling the bill in every particular," and for his statement—"One argument used in favour of the soapstone is hardly tenable. A Virginia City paper, speaking of the same article abounding at Jackson, Amador county, California, says it is soft when taken from the quarry, and under heat grows harder and harder. That latter qualification would condemn it at once. If they could furnish stone that would remain soft under the action of heat it would exactly meet the requirements. The heat maintained at the mouth of the twers is over 2000°, and under its influence all rock hardens, and grows brittle, flakes off, and finally wears out. Rocks into which clay enters largely as a constituent instead of silica or limestone are more tenacious, and resist the action of heat much longer than siliceous sandstones, granites, &c., and are chosen for those qualities. If the South Carolina soapstone will not stand longer than three months there is very little fear of its ever going into use in this district." To refer soapstone, or steatite as it is more correctly called, to sandstones and granites is simply absurd. If the bricks of it be properly manufactured it forms the best furnace lining that could be used, and is not at all liable to crack, flake, or grow brittle. Steatite is largely used in England, where heat-resisting power is required, and all that is necessary to ensure success is to carefully manufacture the bricks, and bring up the temperature cautiously when they are first used. They will then stand anything.

Flagstaff, 1 to 1½; the American section of the board have, temporarily at least, secured the victory in the battle which has been for some weeks referred to as raging between the rival parties in the management. Messrs. Harvey and Pearson have resigned, and with them Dr. John Wild, of the Cape Copper Company, whose co-operation at the board was declared only a few weeks since by the American party to be such a valuable accession of strength. Mr. Vincent now holds the chairmanship, and to replace the directors

who have resigned Mr. E. Applegarth, of the Eberhardt and Aurora board, and Mr. W. H. Bennett, a director of the Albion Life Assurance Company, have already been elected. It is proposed to fill up the third vacancy with another Eberhardt director, but it appears that he, being more cautious, desires to make some investigation into the position of the company before accepting office. Prof. Vincent is certainly to be congratulated on the completeness of his victory, the new board being practically an American board, and therefore men whom he can trust. In connection with this matter it is to be observed that—"Referring to the Emma and the Flagstaff Mines, the Salt Lake papers say they cannot wonder that Utah mines are in such bad repute abroad when companies show themselves so grossly unfit to manage mining properties, and prefer litigation to delving in the earth. The Emma Company spent money enough in the courts to repair the damage done by the 'cave.' While these litigious persons are fighting over their grievances, Mr. Scrimgeour, the gentleman in charge of the mine, is taking out good ore, and if the owners of the mines would quit the courts, and have recourse to the mines, there is no doubt they would find treasure enough to make their investment remunerative. And so with the Flagstaff owners; they have placed their affairs in the hands of unfit persons, who, instead of rendering a profit, have run them into debt. A wise course would be to profit by past experience, and place the future management of the mine in the hands of some persons who can be trusted. But, no; they must go to law, and spend money lavishly, when it is clear to the most simple-minded that no good could possibly result. Meantime it is becoming more and more apparent that Mr. Lygonius Edgerston's exposure of the crookedness practised by the Flagstaff agents is having its effect, and if the transactions of the past year are to be rehearsed in court we should not be surprised to see him fully vindicated."

Eberhardt and Aurora, 7½ to 7½½; Capt. Frank Drake states that work on both the tunnel and incline is progressing rapidly, with a promise of the best results. The tunnel is now in 2400 ft., and is being pushed forward at the rate of 200 ft. a month. The ore body recently struck has not been prospected to any great extent, a drift of 15 ft. only having been run into it. The tunnel cut through this quartz formation is now running through highly silicified lime of the same character as found near the rich ore bodies in the upper workings. The tunnel at the present point is 530 ft. below the surface. It will run under the Aurora ground at 400 ft. from the present headings, and 1600 ft. from the face. The incline is down 1400 ft., and work still going on. A local paper says that Capt. Drake is entitled to great credit for his faith and perseverance. On the work carried on by him depends much the fate of Treasury Hill, and if he meets with developments, Hamilton will be indebted to him for any future prosperity it may have.

Frontino and Bolivia, 2½ to 2½½; the latest advices show that satisfactory progress is now being made at the several mines, and that the average of the yield of gold per ton is over ½ oz., which is satisfactory. The engine-shaft at the Silencio Mine appears to have been set right, and the new shaft will soon be down on the rich shoot. At the Palmichala Mine the steam-engine was working, and the sinking of the shaft was progressing well.

The Market for Hydraulic or Gold Washing Shares remains quiet, though there has been some enquiry for shares of this description during the week. The latest Californian papers speak of a steady downpour throughout the State, and say that everybody is in the highest spirits at the prospect. Hultafall, 5 to 5½; since last week no change has occurred at the mines. A full report is expected next week. With regard to the erection of the machinery, it is reported that the boilers are up and connected, the jiggers are in position, the brickwork of three out of five buddles is nearly finished, and the other two well advanced. The framework for the buddle is now being fixed. The buildings covering over the whole of the dressing-floors have been finished.

Lead Mines have been without special change, but a fair amount of business has been transacted. Van, 29 to 31; the usual monthly report appears in another column. The yield of the various stopes continues much as usual. The ends are looking very well, and the indications of meeting with a good lode at the next level are exceedingly encouraging, the sinking of Seaham's engine-shaft being hindered a little by the work of excavation—always a good sign at this mine. Grogwinion, 3½ to 4½; the latest advices state that the winze in the bottom level is still looking very promising. Wye Valley, 2 to 2½; the debenture capital is being well applied for by the shareholders, and the mine is steadily improving in appearance. West Wye Valley, 3½ to 4; everything going on well, and lode opening out very rich. Ore discoveries of great importance are being made at Brookers' shaft. Caron, 2½ to 2½½; good progress making underground, and lode looking very satisfactory. Surface operations have been somewhat hindered by the weather. South Cwmystwith, 3½ to 4; the heavy snow has delayed dressing operations, but every effort will be made to commence ore sales by the time fixed in the manager's last report. Lode looking very rich, and stopes opening out well. Red Rock, 2 to 2½; the development of the new discovery at the 60 is being pressed forward, and it is improving in value. A second parcel of lead is being got ready for market. Mine looking well at all points.

Pateley Bridge, 3½ to 3½½; the underground workings have been retarded this week by a slight breakage at the engine; this has, however, been set right, and operations resumed. The east and west ends, on Rake vein, were looking splendid at the date of the interruption. Dressing and smelting are being carried on steadily. Leadhills, 4½ to 4½½; the mines continue to open out well, and in next week's Journal the manager's monthly report will appear.

Subjoined are the closing quotations:—

Asheton, 3½ to 3½½; Caron, 2½ to 2½½; Devon Great Consols, 3 to 3½; Dolcoath, 32 to 34; East Caradon, ½ to 1; East Lovell, ½ to 1; East Van, 2½ to 3½; Grogwinion, 3½ to 4½; Great Laxey, 2½ to 22½; Hingston Down, 4s. to 7s. 6d.; Leadhills, 4½ to 4½½; Marke Valley, 1½ to 2½; Parys Mountain, 3½ to 3½½; Pateley Bridge, 3½ to 3½½; Penstruthal, ½ to 1½; Roman Gravelly, 7½ to 8½; Rookhope, 3½ to 1; Tankerville, 3½ to 4½; Tincroft, 11½ to 12½; Van, 27½ to 30; West Asheton, ½ to ¾; West Pateley, 2 to 2½; West Tankerville, 3½ to 4½; Wheal Crebor, 15s. to 20s.; Wheal Grenville, 2½ to 3; Wheal Tinto, 3½ to 4½; Argentin, 2 to 2½; Birdseye Creek, 5½ to 6½; Blue Tent, 3 to 3½; Cape Copper, 32 to 33; Cedar Creek, ½ to ¾; Chontales, 9 18ths to 11 18ths; Colorado Terrible, 5½ to 7½; Condes of Chili, 2 to 2½; Don Pedro, ½ to ¾; Eberhardt and Aurora, 7½ to 7½½; Exchequer, 2s. to 4s.; Flagstaff, 1 to 1½; Frontino and Bolivia, 2½ to 2½½; Hultafall, 5 to 5½; L.L.L., ¼ to ¾; Javali, ¼ to ¾; Kapanga, 1 to 1½; Last Chance, ½ to 1; New Quebrada, 2½ to 2½½; Oregon pref., 4 to 4½; Pestarens, 5s. to 7s. 6d.; Plumas Eureka, 2½ to 3; Port Phillip, ½ to 1; Richmond Consolidated, 8½ to 8½½; St. John del Rey, 300 to 320; San Pedro, 1-18ths to 3-18ths; Sierra Buttes, 1½ to 1½½; South Aurora, 2½ to 3½; Tecoma, ½ to ¾; United Mexican 2 to 2½.

COLLIERIES.—But little improvement has taken place in the market for this class of shares, and few transactions have taken place. The great depression now ruling in the coal and iron trades has the advantage of bringing out more conspicuously those companies which can do well during bad times, and which consequently may be regarded as exceptionally good for investment, though it must be confessed even those do not meet with that amount of favour which is their due. In the various districts trade remains nearly as last week. If there seems to be an increase of activity in one quarter, it is fairly balanced by depression in another; and under any circumstances it is only the large concerns supplying the best quality of article which get anything like satisfactory orders. It is these only which can at the present moment make profits, and which should be sought for by the investor. With the revival of trade whoever now makes a good choice will reap large profits.

Altamira shares have changed hands between 4 and 5. The colliery is reported to be opening out exceedingly well. John Abbott and Co. close 66 to 67; Benhar, 8½ to 9; Oakmore, 2 to 2½. Cardiff have been offered, and close at ¾ to 1½. The depression in South Wales is affecting this colliery most seriously, and unless trade soon improves the balance sheet for the present year will show even worse than for 1876. Chapel House, 3 to 3½; the new pit is now down 372 yards, leaving only 15 yards to complete. The Park Mine, which has been opened up from the 16 ft. pit ready to make an output of 3-9 to 400 tons per day so soon as the one is completed. The manager reports having an ample demand for all that can be raised at the best prices. Consent close at 17½ to 17½; Andrew Knowles and Son, 10½ to 10½; and Nant-y-Gloand Blaina, 14 to 17. New Sharlston have been dealt in at lower prices, the final quotation being 3½ to 3½. The company is said to be something more than clearing its way, but it is the splendid quality of the "Sharlston Wallsend" coal which contributes to its success. Newport Abercarn close firm at 4 to 4½; Pelsall, 2½ to 3; and Thorp's Gawber Hall, 2½ to 2½.

DEVON GREAT CONSOLS.—The manager in his report received at the company's office yesterday calls attention to the discovery of a lode at the bottom part of the mine in the 190 cross-cut, which, so far as seen, is 7 ft. to 8 ft. wide, and worth 5 to 6 tons of good quality copper ore per fathom. This may be considered a most important discovery for the future of this (being the bottom level) part of the company's extensive property, and may be the means of revealing shortly other and equally important discoveries. On Thursday next the month's sale of copper ore (929 tons) is expected to realise a much better price than last month.

NORTH LAXEY.—The extraordinary general meeting was held on Thursday, when an important communication was read, accompanied by resolutions passed at a meeting of some influential local shareholders, who strongly advocate an entire change in the management at the mine. Several shareholders who have lately

become interested in the company begged the directors to give Capt. Rowe "another chance," and as the large majority of those present on Thursday did not wish to vote, and felt it was more a matter for the board, who were the best qualified to form an opinion, it was agreed to leave the matter in their hands. We may allude to the subject again next week.

HOME MINES, AND PRICE OF METALS.—There appears but little doubt we shall shortly see a great revival of trade generally, and with better prices of metals a good demand for copper, tin, and lead mine shares is sure to follow. Already an increased business has set in.

TANKERVILLE.—As will be seen by the agent's report this week in another column the several points in operation are worth together about 300l. to 330l. per fathom. The sale of 100 tons of lead ore on the 10th inst. realised 1245l. Mines much improved, especially in bottom levels.

GREAT DYLIFFE.—This mine, in the Van district, is now operating on a most important discovery on a new lode only a few fathoms from the surface, which is producing splendid rocks of almost solid lead ore, and bids well to equal the other three champion lodes in the mine which gave such enormous profits to the Bright and Cobden party a few years ago. Shares in demand again at 2½ to 3½, and appear very scarce, being well held.

ZINC ORES.

ARMAND FALLIZE,
INGENIEUR-CIVIL, A LIEGE (BELGIUM),
BUYER

- 1.—CARBONATED AND OXYDED ZINC ORES (CALAMINE, &c.)
- 2.—ZINC AND LEAD ORES MIXED TOGETHER, BUT DRESSABLE KINDS ONLY

CAPPER PASS AND SON, BRISTOL
PURCHASERS OF

LEAD ASHES, LEAD SLAGS, SULPHATE OF LEAD, HARD LEAD, BRASS SLAGS AND ASHES, COPPER REGULUS, MATTE, SCORIA, TIN ASHES, TERNE ASHES, &c., and MIXED ORES or REFUSE, containing LEAD, COPPER, TIN, or ANTIMONY.

ORE DRESSING.

MR. T. CURRIE GREGORY, C.E., F.G.S.,
AND MINING ENGINEER,

OF 4, WEST REGENT STREET, GLASGOW,
AND 52, QUEEN VICTORIA STREET, LONDON,

May be personally consulted in LONDON on all matters connected with Ore Dressing and Rock Drills, to which he has for years paid special attention.

Estimates given, and all kinds of Machinery supplied.

REPORTS AND SURVEYS OF ALL MINING PROPERTIES MADE.

C. H. WALKER AND CO.,
MINING AGENTS AND ENGINEERS,
VALPARAISO AND SAN IAGO,
CHILE.

GEO. G. BLACKWELL,
5, CHAPEL STREET, LIVERPOOL,

PURCHASER OF
MANGANESE, ARSE O FLUOR-SPAR, WOLFRAM, BLENDE, CALAMINE, CARBONATE AND SULPHATE OF BARYTES, ANTIMONY ORE, CHROME ORE, MAGNESITE, EMERY STONE, PUMICE STONE, OCHRES AND UMBERS, CHINA CLAY, LEAD ORE FOR POTTERS, TALC, &c.

Exhibition Prize Medal—New South Wales, 1877.

AUSTRALIAN TIN—"KANGAROO" BRAND.

Having recently succeeded in REFINING the AUSTRALIAN TIN to the HIGHEST PITCH OF PURITY, the Undersigned is prepared to SUPPLY an article equal to the BEST REFINED ENGLISH.

The uniform assay of the "Kangaroo" brand ranges from 99.70 to 99.90 pure tin. An exhaustive comparative trial of various brands of Australian tin (see annexed report) have proved the

"KANGAROO" BRAND

To be superior to all other Australian tin, and equal to best refined English.

COPY OF REPORT.

"Sydney Galvanising Works, Sydney, Oct. 1, 1875."

"DEAR SIR,—I have much pleasure in stating that I have found the tin smelted at the 'Kangaroo' Tin Smelting Works superior to any other Australian smelted tin I have used in my business up to the present time, and in no way inferior but quite equal to the celebrated 'Lamb and Flag' tin. This opinion has been arrived at after several carefully executed practical tests, as well as from metallurgical assays."

"S. L. Bensusan, Esq." (Signed) S. ZOLLNER."

Messrs. JOHNSON, MATTHEY, AND CO., the well-known Assayers, report on 24th December, 1875, on a shipment ex Durham, 25 tons of "KANGAROO" TIN, 99.95 per cent. pure tin.

In ordering the "Kangaroo" brand the trade will henceforth ensure uniformity of quality, excellence of texture, and absolute freedom from impurity.

"KANGAROO" TIN SMELTING WORKS.

Sydney, September, 1877. S. L. BENSUSAN.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER,
29, BISHOPSGATE STREET, LONDON, E.C. (Established 21 Years)

can sell the following SHARES, at prices annexed:—
75 Almada, 6s. 3d. 200 Exchequer, 4s. 3d. 100 Malabar, 5s.
20 Argentine, 22 10s. 9d. 25 Frontino, 22 10s. 100 Pestarens, 6s. 6d.
10 Aberdaunt. 50 Flagstaff, 21 6s. 3d. 20 Pateley Bridge, 23 13
10 Alham. 10 Gorsead and Merilyn, 25 5s. 75 Parys Mount, 9s. 6d.
50 Bodliria. 45 5s. 100 Penstruthal, 7s.
20 Birdseye Creek, 17s. 6d. 40 Grogwinion, 20s. 75 Port Phillip, 13s. 3d.
20 Colorado, 22 2s. 6d. 20 Hultafall, 18s. 6d.
60 Chontales, 13s. 3d. 20 Hornachos. 15 Richmond, 22 12s. 6d.
50 Cambrian. 50 Hingston, 6s. 10 Roman Grav., 28 1s. 3
50 Cedar Creek, 5s. 9d. 30 Last Chance, 17s. 6d. 20 Russian Copper, 21 6s.
25 Chicago, 22 25 Llanrwst. 20 Tankerville, 24 2s. 6d.
200 Don Pedro, 7s. 6d. 15 Leadhills, 24 8s. 9d. 50 Tecoma, 5s. 3d.
30 East Lovell, 8s. 9d. 20 N. Quebrada, 22 6s. 3d. 30 Tintima, 23 10s.
10 East Van, 23 5s. 75 N. Laxey, 7s. 30 Van, 22 9.
25 Devon Cons., 23 5s. 30 New Zealand Kap., 25 West Pateley Bridge, 22 6s. 3d.
25 Derwent, 21 15s. 21 4s. 20 W. Tankerville, 17s. 6d.
15 Eberhardt, 27 8s. 9d. 25 Marke Valley, 17s. 6d. 10 York Penin., 6s. 9d.
25 East Caradon, 17s. 6d. 6 Minera.
Shares bought and sold at net prices. Telegrams promptly attended to.

NOTICE OF NEW ADDRESS.

MR. GEORGE BUDGE, STOCK AND SHARE DEALER,
begs to inform his clients that he has REMOVED his BUSINESS from
4, Royal Exchange Buildings, to—
No. 9, GRACECHURCH STREET, LONDON
(Established 27 Years).

Mr. Budge has dealings either as Buyer or Seller, at close net prices, in Caron, Van, Roman Gravelly, Tankerville, West Wye Valley, Great Laxey, Grogwinion, Llanrwst, Devon Great Consols, Marke Valley, Wye Valley, Bedford United, Exchequer, Richmond, Frontino, South Aurora, Last Chance, Red Rock, Flagstaff, Eberhardt, South Cwmystwith, and Chontales.

SPECIAL BUSINESS IN SHARES OF THE CARON LEAD MINE Limited.—This very promising mine is situated near to the Lisburne and Grogwinion Mines, and contains parallel lodes thereto. All the capital is subscribed, and the works are in full operation. Sales of lead will commence directly the new dressing machinery is completed. These shares are strongly recommended for an early rise in price. Present quotation, 2½ to 2½½, at which Mr. Budge is prepared to deal. Full particulars on application.

WEST WYE VALLEY.

This property has commenced to make regular returns of lead: 50 tons were sold last week at 212 per ton, and a parcel will in future be sold every month. The shares are worth attention. Price 2½ to 2½½.

ADDRESS—9, GRACECHURCH STREET, LONDON, E.C.

MESSRS. J. TAYLOR AND CO.,
MINING ENGINEERS AND INSPECTORS,
86, LONDON WALL, LONDON, E.C.,
Have Agents in England, Scotland, Wales, and on the Continent.

Notices to Correspondents.

* Much inconvenience having arisen in consequence of several of the Number during the past year being out of print, we recommend that the Journal should be kept on receipt; it then forms an accumulating useful work of reference.

LEAD.—I am occasionally shipping parcels of lead, but fail to understand the "returns." Would some of your readers inform me what is the standard, and what is added or deducted per unit above or below the standard; also, what is the rate containing 65 per cent. in the present depressed times worth?—E. W. A. London, Jan. 10.

BAZIN'S DREDGER.—"E. O." (Torquay).—We have handed your note to the representative of Mr. Bazin in this country, and he has promised to send you all necessary particulars. The invention is said to have been largely used both in Europe and America, and to have given highly satisfactory results in every case.

SPRING PROPULSION.—"R. F." (Birmingham).—A proposition for propelling tramway cars by spring-power was made some years since by Mr. De Vaux, of Hammersmith, but although a model was shown in working order the invention never succeeded on the large scale. Some large springs were made, and a car was being fitted with them at Middleton's factory, in Southwark, but the difficulty of getting springs of equal temper and of such great size (24 ft. long by about 4 in. wide and 1/2 in. thick) proved insurmountable.

FLAGSTAFF.—"R. St. S."—Thanks for your correction, and are pleased that Flagstaff affairs are arranged so amicably.

NORTH LAKES.—"Holder of Three Hundred Shares."—The statements as to the returns at the last meeting were made by Capt. Rowe. We fear your proposed plan would not answer, and would not be generally satisfactory. The shareholder whose letter appeared in the Journal was proved to be wrong. The 1600. included office rent, clerks, and petty expenses—which would leave a very moderate amount for salaries.

FLAGSTAFF.—The letter of "An Original Share and Debenture Holder" (London and Salt Lake) shall appear in next week's Journal.

Received.—"Miner" (Penrith)—"F." (Paris)—"W. S. L." (Glasgow)—"Copperhead" (Cape Copper)—"R. S." We hope so—"R. W. B."—"J. B." (Glasgow)—"U. Y." (Bath)—"R. K." (Old Treburgett)—"A. T." (Partington)—"Constant Reader" (Dynamite and Tonite)—T. Quinlan (Flagstaff)—"Shareholder" (South Tolemore)—"Constant Reader" (Kew)—"Shareholder" (Old Treburgett)—"N. B." (Glasgow): We do not think so.

THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, JANUARY 12, 1878.

IRON AND COAL EXPORTS.

The views which we have on several occasions enunciated with respect to the decline in the value of our exports of iron and coal during the past year have been fully borne out by the Trade and Navigation Returns just issued. In wrought and unwrought iron it appears that in 1876 we exported to the value of 20,737,410*l.*, whilst last year the amount was 20,094,562*l.*, a decrease equal to 3.1 per cent., although the last month contrasted favourably with the previous ones. In hardware and cutlery there was also a deficit last year, when the value was 3,335,837*l.*, against 3,483,286*l.* in 1876. These figures show that our trade has been in anything but a satisfactory state during the last 12 months, and we may fairly assume that the low prices which have prevailed for every description of iron, raw and manufactured, as well as steel, has caused the profits of producers to be very small indeed, and has led most of them, on realising their position thus early in the year, to require a reduction in the rate of wages, or close their works altogether. The result, so far, has been that at the present time our production has fallen off considerably, and will do so still more unless workmen will combine with their employers for the purpose of getting trade back again into its old channel. It has been the custom of the agitators connected with the mining interest to ridicule the idea of the coal trade being in any way affected by the rate of wages, for there were no countries able to compete with us in the European markets, of which we have the sole control. But the Board of Trade Returns show as plain as can be that such statements are not based on actual facts, so that the sooner such delusions are dispelled by the workmen so much the better, for we no longer have the control of markets that at one time were almost wholly supplied with English coal. France has long been our best customer, but during the last year or two more than usual attention was paid to the development of the minerals of that country, so that whilst in 1876 we sent there 3,250,564 tons, in 1877 we only forwarded 2,982,372 tons, or a decrease of 268,192 tons. Germany stands next, but owing to the increased energy of the Westphalian and other colliery owners our exports of coal fell from 2,278,905 tons in 1876 to 2,029,238 tons in 1877. Russia has also taken less from us than during the previous year, as have Holland, Italy, Turkey, and Denmark. On the other side, we find that there has been an increase in the tonnage exported to British India, where the railway system is being actively developed, but in that distant region collieries are being opened out that must have the effect in time of reducing the present consumption of British coal. The exports of coals for the year 1877 were 15,358,828 tons, of the value of 7,828,497*l.*, whilst in 1876 they were 16,299,077 tons, valued at 8,904,463*l.* We have, therefore, a falling off in the quantity sent abroad of 940,249 tons, with a decrease in value equal to rather more than 12 per cent. The value of the coal exported in 1876 appears to have been about 10*l.* 11*d.* per ton, whilst last year it was barely 10*s.* 2*d.* per ton. No doubt this reduction in price was in a considerable degree due to the competition which had to be encountered, and if the coal had not been sold, or rather offered, at so low a price the decrease in the exports would have been much heavier than they are. Any advance, therefore, in the price of coal could only have the effect of most sensibly diminishing our exports of that important article.

OVER-PRODUCTION OF COAL.

The views of Mr. MACDONALD, M.P., with respect to the over-production of coal and the limiting of the output have been recently combated by a working man before a Barnsley audience, in which district it will be remembered the men at one colliery attempted to carry out the policy prescribed by the Member for Stafford, as the only means by which the price of coal could be advanced, and the miners' wages increased. Mr. MORRISON, the secretary of the Barnsley Working Men's Liberal Association, is the person to whom we refer, and in a paper read by him he laid it down as an indisputable truism that artificial means of raising prices, whether of labour or of coal, can never be long effective, for if they were even temporarily successful they brought into the field counteracting influences which made the success of very little advantage. He contended that the condition of the miner could not be permanently improved by any combination it was possible to form; even supposing that the attempt to raise prices should be successful, the demand instead of being stimulated would be still farther restrained. At the same time, not only the rise in the wages but also the increased ease with which the money was being earned would induce a further influx of men in the pits, and capital in still larger volume would be allowed into a trade, the returns from which had been raised above the ordinary level. This we may say was the case in 1872 and 1873, and is undoubtedly the cause of the existing depression in the coal trade. Mr. MORRISON pointed out this, and remarked that when the limit, whatever it might be, was reached there would, as has been the case, be more men seeking employment and less work for them to do, and the temporary rise in wages would be followed by a much heavier and more enduring fall. It would be admitted that the first sudden diminution of the output of coal would cause prices to increase, but the moment the advance was established counter influences would come into action; and then our iron trade, for instance, would be seriously affected, and the price of it would be greatly increased. Even now, however, there were complaints that our iron manufactures are being undersold by those of Belgium and America, and were coal to be advanced in price they would be completely out-distanced. Most of our other leading industries were in a similar position, and it was, therefore, clear that even a slight artificial rise in the price of coal would probably check the

consumption to a much greater extent than the output had reduced. Besides, even were the miners momentarily successful in obtaining higher wages by doing less work, they must be prepared to find other workmen in different departments of trade aiming at the same object, so that there would be a general restriction. If restricting work could not keep up wages when they were high it was not likely to raise them when they were low, for a high rate of wages cannot be upheld in a falling market. If the existing depression continues many collieries which owe their existence to the flush of 1872 will discontinue working, or restrict their output, while in addition low wages will drive labour away from the trade, as high wages brought labour into it, and some such process has already commenced. The paper we may say was an able reply to the proposal made by Mr. MACDONALD, and was a practical *exposé* of its absurdity.

AFFAIRS IN WALES.

It is always ungenerous to exult over a fallen foe, and still more ungenerous to exult over human misfortune or human misery, from whatever cause it may arise. Far be it, then, for us to chuckle over the sufferings which have now well nigh overwhelmed the people of South Wales. But we are bound, even in the interest of the suffering South Welsh themselves, to point out that a grave responsibility rests upon the authors of their troubles. The authors of those troubles are not the capitalists who found the money, which once caused the hum of happy industry to resound throughout the valleys of South Wales, but the reckless, illiterate men who began to set labour against capital in the spring of 1871, and who have ever since been gradually bringing their unfortunate dupes to that verge of starvation to which it is to be feared that many of them have now been reduced. The experience of the South Welsh iron trade—and to some extent also the experience of the South Welsh coal trade—shows that business cannot be carried on if the capitalists engaged in it are continually being harassed with labour complications. A large industrial establishment must, if it is to be successful, present a united front to the world. An employer has quite enough to do to face competition from without, without having to deal with discord from within. It may appear strange that we should have to lay down such simple elementary principles as these; but they are none the less important and essential in our days, although we had fondly supposed we had made such "progress" that we could afford to disregard the precepts of our ancestors, and to treat them as mere old wives' fables. So far as the South Welsh iron trade is concerned, it has proved in the sternest possible fashion that an absence of harmonious action between employer and employed simply means ruin to both. Such *ignes fatui* as Mr. MACDONALD or Mr. HALLIDAY may have the gift of talking over a mass of thoughtless workmen, who may be fancying that their employers are deriving too much profit from their labour, but they cannot obliterate the fact that since 1872 everything has gone wrong with the iron trade in South Wales. It was in 1872 that the influence of the HALLIDAYS and the MACDONALDS first became so disastrously powerful, and since 1872 the ironmasters of South Wales have lost the business which once enabled them to live in prosperity, while the ironworkers of South Wales have lost the wages which once brought them substantial comforts.

The stern question which now awaits consideration is whether the iron rail trade of South Wales is not gone for ever. Formerly South Welsh rails were produced upon terms which secured them a ready market in the United States, but Mr. HALLIDAY and Mr. MACDONALD set to work, labour became disorganised, impatient of control, and unamenable to reason; and while South Welsh ironworkers and ironmasters were quarrelling among themselves, the Americans began to make rails on their own account, and with the help of heavy tariffs imposed by Congress on foreign iron entering the United States, they have now practically driven British iron from American markets. We do not wish to be too despondent, but we cannot ignore the fact that eminent authorities on these matters like Mr. MENECLAUS, of the Dowlais Works, and Mr. WILLIAMS, of Bolckow, Vaughan, and Co. (Limited), are stated to have expressed their opinion that the iron rail trade of South Wales has gone from the district for ever. The further fact must also be mentioned that the shareholders of the Nant-y-Glo and Blaenau Ironworks Company (Limited) have authorised the directors to break up the ironworks of the company, to sell the fixed plant of the works, and to cease to carry on the trade of ironmasters. Such a policy as this may possibly be premature, but at any rate the opinion of Dowlais and the action of Nant-y-Glo points to the conclusion that the railway iron trade of South Wales is gone for ever.

PAPER FROM BLAST-FURNACE SLAG.

Not long since a notice was published in the *Mining Journal*, pointing out the vast improvements which had been made in the production of silicate cotton from blast-furnace slag, and it is now proposed by Mr. A. D. EBERS, of Hoboken, New Jersey, to apply the material so produced to the manufacture of wadding, felting, and paper. The object of the new arrangement is to separate the mineral wool from the shot or sand-like impurities which are usually developed during its manufacture, and Mr. Ebers has also invented an improved apparatus for receiving the wool, and compressing it into wadding, and a new method of preparing the wadding so as to render it cohesive. Mineral wool is made by blowing a jet of steam or air through or by mechanically agitating a small stream of molten scoriaceous substance, converting the latter into vitrified fine fibres, which are, however, intermixed with imperfectly separated globular matter having the appearance of sand or shot. These vitreous fibres possess little elasticity; they break easily while being sifted from said sand or shot, or when handled or subjected to any kind of mechanical action. If the receptacle into which the spray of mineral wool is propelled by the jet or device producing it is of large size, a current of sufficient strength is created to blow part of the fibres upwards to the ceiling or into recesses or shelves remote from the direct course of the spray, which recesses or shelves the shot, on account of its greater weight, does not reach. The quantity of mineral wool gained in this way is, however, insignificant in comparison with the bulk of the material remaining mixed with shot.

To provide a more perfect separation Mr. Ebers uses an extra jet or current of air or steam, or both combined, to be blown through or against the spray as it flies from the stream of scoriaceous matter, said extra jet or jets forcing the fibres into another direction than the shot. Thus, in this operation a stream of scoriaceous matter is allowed to flow into a trough or conduit from a suitable furnace, or from a receptacle, which, after being supplied with the said matter, is removed from the furnace to or with the said trough to discharge the scoriaceous matter in proper vicinity to a pipe, through which a jet of air or steam is projected against the small stream of scoriaceous matter that issues from the trough or conduit, and blows it into a suitable apartment. In place of the jet a mechanical agitator may be used. Another pipe is placed with such reference to the current which is produced by the first jet that it will discharge another current of air, steam, gas, or liquid against or through the spray of mineral wool thrown by the said jet. This extra first current will change the direction of the mineral wool, but not materially that of the shot or sand, which is heavier than the wool. The wool will by the second current be carried into an adjacent compartment to ensure its separation from the shot, but may if desired be by the said current deposited on elevated shelves or in elevated recesses in the first or an upper compartment, which it will also reach free from shot or globules.

In order to make a felting from mineral wool of sufficient compactness to be wound around steam-pipes, nailed or glued to floors, or to be used in a similar manner, he employs pans or vats placed or hung on shelves, floors, or ceilings in the compartment where the mineral wool free from shot is to settle down. He constructs these pans of such length and width as the sheets of felting which he wishes to obtain, and of such depth as may be requisite to contain sufficient wool to be compressed to a given thickness. The mineral wool is caused to settle into these pans in a very loose state; so that, for instance, a heap 3 ft. high would be easily compressed to 3 in.

thickness or less. In fact it is merely a question of formula to determine the necessary contents of a pan for the required thickness or consistency of felting, and to construct the pans accordingly. When these pans contain the requisite amount of wool he presses the wool by means of a lid in any other well-known mechanical way, or the bottoms of the pans may be set loose, so that by reversing a pan the bottom may serve as a lid for compressing the wool. These various devices are obvious, the effect always being to compress the mineral wool without previous handling into felting or wadding, thereby preventing as much as possible the breaking, and facilitating the uniform intertwining of the vitreous fibres. The pressing of the mineral wool may be done when the pans are more or less filled, so that the contents of a pan may be pressed, and then the process of blowing or gathering the wool in the pans continued, another pressure made, and so forth. In this manner he may have several compressed sheets of felting or wadding in the pans, and yet allow new or more fibres to accumulate or settle down on the material already pressed. In order to give more compactness to or to strengthen the sheets of mineral wool thus made, he sizes, paints, powders, or mixes the mineral wool while in the pans or after the sheets have been taken out therefrom; this is best done in pans with loose bottoms. The admixture for this purpose may be plain glue if the sheets shall be allowed to become stiff, or if they are to remain pliable a mixture of glue and glycerine or equivalent substance may be used, which will keep the sheets pliable.

If the mineral wool is to be used in the manufacture of paper he does not at first compress it into sheets, as heretofore described, nor does he treat it with the bituminous, resinous, or gummy substances, but he steeps the fibres of the mineral wool in or lets them be acted upon by a diluted acid, preferably an organic acid, such as acetic acid, but any other suitable acid may be used. This acid will affect the sulphide of lime in the fibres of the wool, and soften or attenuate the same by changing the sulphide of lime into carbonate of lime, emitting sulphuretted hydrogen gas. The fibres of the mineral wool, which were already very fine, but rather stiff and inflexible, are weakened or reduced in body by the acid, and become softer and more pliable. After the mineral wool has remained in the diluted acid for a sufficient length of time to properly reduce the fibres, or during this process, it may be agitated either by a mechanical agitator, or by currents of boiling water, or by other suitable means. This will cause the heavier residue or shot in the mineral wool to settle at the bottom while the finer fibres will float near the top. These finer fibres are then taken out of the acid and mixed in any desired proportion with the paper pulp, which is then subjected to the action of the paper-making machine in the customary manner, or the mineral wool may be agitated, and treated as before described in connection with the organic admixtures of the pulp. The mineral wool after its treatment with the acid may also be advantageously mixed with other substances that may be worked into matter analogous to paper, such as felt or the like, to which stiffness or consistency is to be imparted.

LOCOMOTIVE FOR GOLD MINES.—A compact little locomotive constructed by the Baldwin Locomotive Works, of Philadelphia, has been adopted by the Bald Mountain Gold Mining Company, at Forest City, California. It appears that Mr. H. W. Wallis, the superintendent of the company, sought to procure a locomotive to work by compressed air, if possible, some fears being entertained as to the practicability of working a coal burning locomotive, on account of the effect of the gases on the ventilation. The Baldwin Locomotive Works, believing from their experience in the construction of mine locomotives for underground work in the coal mines of Pennsylvania, that a locomotive burning anthracite coal would be unobjectionable in the tunnel of the Bald Mountain mine, in view of the ventilation as described above, recommended such a machine for the purpose. They undertook to construct a locomotive which could haul 30 or 40 empty cars up the maximum grade in the tunnel, which was then assumed to be only 166 ft. per mile. They estimated its consumption of fuel would be from 400 to 500 lbs. of coal daily in hauling a total of 192 cars up the grade in eight hours. The locomotive has 8-in. cylinders with 12-in. stroke; the driving wheel is 24 in. diameter, and in working order weighs about 7 tons. It is 61 in. high and 46½ in. wide across cylinders. After six months trial a very satisfactory testimonial of its working was given.

COAL AND IRON IN THE UNITED STATES.—The Pittsburgh and Lake Erie Railroad Company has purchased a quantity of steel rails from a rail mill at Cleveland, Ohio, at the low price of \$41 per ton, cash, delivered at the west-end of the road. The seller has the option of delivery at any time between now and the spring, but it stipulated that the rails are to be of first-class quality. There is a continued fair enquiry for all the leading grades of steel at Pittsburgh, and the mills appear to have about as much work as they can well get through with. The demand for all kinds of finished iron has fallen off considerably at Pittsburgh of late, and it is expected that the lull will continue until the middle of this month. It is considered that there is a favourable prospect for a good spring trade, as an increased consumption is confidently anticipated, and with a decreased production—a number of mills having been stopped in consequence of financial troubles—hopes of more remunerative prices are also entertained. The production of coal in Pennsylvania increased last year to the extent of about 1,250,000 tons, as nearly as can be estimated at present. This must be regarded as a noteworthy result, having regard to the difficulties and disorders of the past year.

SOUTH AFRICAN COAL FIELDS.—Mr. Fred. W. North, mining engineer, of Dudley, whom the Government has sent out to South Africa, to inspect and report upon the coal fields of that colony, writes that he has finished a careful investigation over an area of 3000 square miles in the Cape Colony. He has been instructed by Sir Henry Bulwer, Lieutenant-Governor of Natal, to conduct a similar scientific expedition in that colony. He intends to proceed overland, through Caffraria to Pietermaritzburg, where he will be occupied for the next six months.

WESTPHALIAN COAL.—A North German paper gives some details of the development of late years of mining operations in the coal fields of Westphalia. In 1852, the output from all the mines in the district amounted to 2,018,000 tons only, the value of the coal raised being about 12,500,000 fr., and the number of workmen employed 14,632. In 1876 the amount raised was 17,637,000 tons, and the number of men employed 81,438. The total amount of coal in the Westphalian fields is estimated, in round numbers, at a hundred thousand millions tons, and from comparative trials which have been lately made with thirty kinds of Westphalian and thirty kinds of English coals, in the first place by the mining companies interested and afterwards by a scientific committee appointed by the naval authorities in Wilhelmshafen, it appears that some of the Westphalian coal is at least equal to the best obtainable from England. Since these trials the German navy and several of the large German steamship companies have altogether ceased to buy English coal, and now burn nothing but the produce of their native country.

HOT-BLAST BLOW PIPE.—The invention of Mr. THOMAS FLETCHER, of Warrington, relates to the construction of a blow pipe, capable of utilising the waste heat of the flame itself, for the purpose of heating the air previous to its escaping at the nozzle, and whereby the power of the blow pipe is considerably increased. This is effected by arranging the blow pipe, at or near the nozzle, in the form of a coil. In using the blow pipe the coil is held in the flame of the candle or other flame employed, so as to permit part of the flame to pass through such coil, and thus to heat the air passing through the blow pipe previous to its issuing at the nozzle, whilst the other and most powerful part of the flame is still utilised, as heretofore, for forming the blow pipe jet. He is thus enabled to materially increase the power of a blow pipe, and to produce a degree of heat hitherto unattainable by the ordinary blow pipe. It will thus be apparent that the important feature in the invention is the coil. Instead of this coil he might employ an air chamber or an enlargement of the blow pipe at this part for the same purpose, but it will

be obvious at the same time that his invention improves the method of blowing, and that the other blow

PUMPS has invent or clocks or lever, pie required

Jan. 10. policy to Clearly it that the p quate way not to see condition due this: Parliament Until there can be no prices are be a very condition exception— and then above all

If Dr. E noticing t certainly u under that Capt. Treg public ha prehensibl drawn? recting w public. I and the ca withheld, that is pr comes to. data as pu profit thos objects we had every afforded h evidently plained ev and saying He is the we are not made oper companies such dema goes on to to replies" sense." "J an ordinari ignorant of provides, f may dema Holmbush represent. know wha We grant I whether th which we l by himself

When w before judg W. H. Hul would be s value of th of Capt. Th is likely to large intere his object think that he has been Thomas in announcing makes Mr. he now dees

"I may be mending a ca that it was in the notice known to the holders compl prevent a call ment of a cor Having retire cially to those the mine. In considerable l abandonment thought that of the mine) wards the ere of the man take the man had the power my cousin, wh extensive min mine (the prin labour and an working order work, at a cost price of shares both the purc the 109 reliqu which amount pumping-engi 2000*l.* Our ad only 9 of the r which otherw management w copper ore; b by a careful ca produced if th Indeed, so ver of the best min seven months tin, I proposi done for abou copper ore wh wrote me a lett shareholders in out of any mor the proposed a have frequen ground, where turers have not shaft, which co part of the min

To this it In a first reji promising a Capt. Thomas representation o the meeting, I an assertion, I the least recom sider the last s yesterday) shou with the manag ation that I w between the sene ready to help ending it impos

be obvious that this would simply be a less effectual way of arriving at the same result, and which he should consider a modification of his invention. Although he has only shown and described his improvements as applied to a hand blow pipe, it will be readily seen that the same are applicable to blow pipes actuated by bellows, or other blowing contrivances.

PUMPING MACHINERY.—Capt. JAMES HOSKING, of Camborne, has invented an improved construction and arrangements of valves or clacks in pumping machinery whereby the pressure on the valve or clack is partially counterpoised by the application of a spring lever, piston, or other like contrivance, so that less motive power is required to open such valve or clack.

REPORT FROM CORNWALL.

Jan. 10.—There seems to be no real doubt whatever as to the best policy to be pursued at the present moment by the producers of tin. Clearly it is not to their interest to sell. It is impossible to believe that the prices now current for black tin do represent in any adequate way the real current value of that metal, and it is impossible not to see what advantage has been taken of the terribly uncertain condition of affairs into which the country has been plunged to produce this result. At any rate, no harm can be done by waiting until Parliament has met, and the voice of the country has been heard. Until then all the advantage will be on the side of the buyer. There can be no real loss in "stocking" over this period, when the present prices are taken fully into account. The chances are that there will be a very considerable amount of gain. We look upon the present condition of the metal market, in short, as wholly adventitious and exceptional—calculated to benefit the speculator, but nobody else—and therefore our counsel in this case to the legitimate dealer, and above all to the producer, is to wait.

If Dr. Emmens had been wise he would either have refrained from noticing the "attacks of anonymous correspondents" at all, though certainly the comments to which he refers do not come strictly under that head, or he would have followed the example set him by Capt. Tregay, and have given the information, which in his case the public have a distinct and clear legal right to demand. Who is reprehensible under the circumstances if the wrong inferences are drawn? Clearly, to our mind, the man who has the means of correcting wrong information, and refuses to make his corrections public. If the information respecting the amount of profit made and the capital held in Wheal Newton and Holmehush has never been withheld, why should Dr. Emmens decline to give it now? Yet that is practically all that his letter in last week's *Mining Journal* comes to. And so far as we are concerned it was because upon the data as publicly given it was impossible clearly to understand what profit those concerns had made that the comments to which he now objects were penned. It seems to us that Dr. Emmens would have had everything to gain by taking advantage of the opportunity afforded him to clear up a very wide-spread misapprehension. He evidently does not think so. Half-a-dozen lines would have explained everything. He devotes half a column to saying nothing, and saying it in a way which has not had the most satisfactory effect. He is the best judge of the policy of his own action, and certainly we are not responsible for them. But when he says the comments made open the question "how far those in charge of joint stock companies are justified in noticing demands for information when such demands are preferred by anonymous writers?" and when he goes on to add that "the enquiries of shareholders alone are entitled to replies" he will pardon us for saying that he writes "arrant nonsense." "Joint stock" is rather a big phrase by which to characterise an ordinary limited liability company, and Dr. Emmens cannot be so ignorant of the duties of his position as not to know that the law provides, for the protection of the public, that Tom, Dick, and Harry may demand to know who the shareholders in Wheal Newton and Holmehush are, what shares they hold, and what capital those shares represent. Therefore the public have, as we said, a legal right to know what the dividends in these two concerns really represent. We grant Dr. Emmens that they have no direct legal right to enquire whether these dividends were actually earned, but that is a point which we have never raised. If it is raised now it will have been by himself.

When we said that it would be necessary to wait for the result before judging of the practical merits of the action taken by Mr. W. H. Rule in West Seton, we hardly anticipated that the results would be so speedy in declaring themselves. But the drop in the value of the mine which followed immediately on the resignation of Capt. Thomas is a very unsatisfactory forecast of what that result is likely to be. Mr. Rule, as everybody knows, represents a very large interest in West Seton, and we must, therefore, presume that his object was to benefit the mine. Very few, however, but will think that in this as in other matters connected with this concern he has been guilty of a very serious error of judgment. Capt. Josiah Thomas in the circular which he has sent to the shareholders announcing his resignation goes a great deal further than this, and makes Mr. Rule directly responsible for the state of things for which he now deems a committee the remedy. He says:—

"I may here observe that neither the pursuer nor myself had any idea of recommending a call to be made at the meeting, and I have since learnt from the pursuer that it was only on the representation of Mr. Rule that he was induced to insert in the notice of meeting the words 'to make a call if necessary.' Upon this, unknown to the pursuer or to myself, Mr. Rule sent a letter to several of the shareholders complaining of the wording of the notice, and soliciting their proxies to prevent a call being made. These proxies he used at the meeting for the appointment of a committee. Comment on such a proceeding as this is unnecessary. Having retired from the management I think it due to the shareholders, and especially to those residing at a distance, to give a brief account of my connection with the mine. In the year 1874 the mine, which had previously been working at a considerable loss, was further threatened with a greater increase of water by the abandonment of the other mines in the neighbourhood, and it was generally thought that it would have to be suspended. At this crisis Mr. Basset (the lord of the mine) most generously offered to give up dues to the amount of £2500, towards the erection of an additional pumping engine, and at the earnest solicitation of the adventurers, and against my own feelings at the time, I consented to undertake the management, in order, if possible, to save the mine from ruin. Having had the power given me to appoint a resident agent of my own choice, I appointed my cousin, who had previously had great experience in the management of very extensive mines in Mexico. We immediately devised means for draining the mine (the principal workings of which were flooded), and after a great deal of working order. We then erected an additional pumping engine with suitable pit-work, at a cost of £6000, and so improved was the condition of the mine that the price of shares advanced to about 80s. per 400th share. At that time (October, 1875) both the pursuer and myself strongly recommended the adventurers to dispose of the 109 relinquished shares, which could then have been sold for upwards of £9000, which amount would have been sufficient to have paid for the erection of the pumping engine, and also for the relinquished share account, amounting to nearly £2000. Our advice, however, was not taken, and the adventurers decided to sell only 9 of the relinquished shares, in consequence of which calls had to be made, which otherwise would not have been required. During the three years of my management we have sold upwards of 500 tons of tin, and upwards of 8000 tons of copper ore; but both these minerals have so declined in market value that I find by a careful calculation they would have sold for £13,000, more than they have produced if the price had remained the same as when I took the management. Indeed, so very low have the prices of tin and copper been of late that only a few of the best mines in the county have been able to meet the cost of working. About seven months since, seeing that the mine was likely to become more productive for tin, I proposed to increase the stamping power, which I thought could have been done for about £3000, the greater part of which would have been repaid by some copper ore which we should have returned out of an old burrow, but Mr. Rule wrote me a letter in which he said:—'I have conversed with one or two of the shareholders in the company, and find a strong feeling existing against the laying out of any more money for removing or altering any of the machinery; so that the proposed addition was abandoned, and increased returns of tin prevented. I have frequently directed attention to the importance of exploring the western ground, where there are good chances of discovering more copper, but the adventurers have not been willing to devote the necessary amount for sinking a new shaft, which could have been done at a comparatively small expense, so that this part of the mine has not been explored as it should have been.'"

To this it is only fair to say that Mr. Rule has taken exception. In a first rejoinder to the circular of Capt. Josiah he remarks, while promising a more lengthened reply:—

Capt. Thomas says, 'I have since learnt from the pursuer that it was only on the representation of Mr. Rule that he was induced to insert in the notice convening the meeting 'to make a call, if necessary.' Now, Sir, if the pursuer made such an assertion, I can only say that I give it a most emphatic denial; I never gave the least recommendation as to the making of a call, but as I did not consider the last sampling of copper (which was included in the accounts and sold yesterday) should be included in the statement, I advised the pursuer to consult with the manager as to the form of the notice convening the meeting. The accusation that I used the proxies for a purpose that was not intended is simply absurd, because the same persons who had hitherto given me their support came forward readily to help me in effecting some retrenchment in the working expenses, and finding it impossible to carry out this with Capt. Thomas at the head of affairs,

in consequence of his numerous satellites, I had no alternative but to propose a committee."

We wait now to see what will next follow. The collapse of the committee? Apparently that would be the best solution of the difficulty into which the affairs of the mine have been so heedlessly plunged.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Jan. 10.—Colliery owners are loudly complaining this week of the obstinacy displayed by the colliers in refusing to help the bringing about of an improvement in trade. The men, they say, will neither work for a little less money nor will they work even half-an-hour longer. Mine proprietors, who in consequence of pressure in the matter of prices by customers, have lately called their men together, and asked them to accept one of the two propositions mentioned, have been met by a flat refusal. Nevertheless they have had to meet customers' views, and this, combined with the circumstance that their pumping expenses are heavy, is resulting in a pecuniary loss every week the colliery is kept open. Yet to close down the pits would mean, in certain localities, their speedy but complete drowning out. Masters declare that not till the men have felt the sharp pinch of want will they become wiser. Forge coal is plentiful at under 7s. 6d. a ton loaded into boats.

Pig-iron is in dull demand, and competition from other districts is severe. Stocks are heavy, notwithstanding that never before were the furnaces blowing so few. Finished iron is not selling at all freely. Although makers do their best to encourage business by quoting low prices, yet merchants and consumers will not buy heavily.

Yesterday the quarterly meeting at Wolverhampton displayed considerable animation, but did not result in much actual business. Ruling prices of pig and also finished iron declared unchanged upon the quarter, leaving hot-blast all-mine pig at 4s., and cold-blast at 5s., and marked bars at 8s. 10s. Coal, too, was unchanged, at 9s. for furnace sorts. Negotiations were opened which it was hoped would lead to business at the Birmingham meeting.

There was a very large attendance this afternoon at the Birmingham Quarterly Meeting, and there was a disposition on the part of buyers to do business, but they wanted lower quotations; leading makers would not, however, give way; nevertheless firms who have made arrangements with their men gave their customers the benefit. Most finished iron was in reality 5s. down upon the quarter. The bulk of the pigs also were cheaper by about 2s. 6d.

The ironworkers as a rule are showing more sense than the colliers. Certain of them are submitting to reductions in wages, in order to prevent the closing of works. The men employed by the Patent Shaft and Axletree Company have already done this, and on Monday the puddlers of the Chillington Iron Company, Wolverhampton, agreed to a drop of 6d. a ton, and the millmen to a reduction of 5 per cent., to come into operation next week.

Dullness still marks the business of the Stock Exchanges. Coal and iron properties move very slowly. Since my last 5½ prem. has secured the original shares of the Sandwell Park Company, and 5½ prem. the new shares of the same concern. Sellers of the 10s. paid shares now quote 6 prem., but buyers hold off at 5 prem. Holders in the Cannock and Wimblebury Colliery are at par, in the Spon Lane Colliery at 6 dis., and in the Walsall Wood Colliery at 2½ dis. The 20s. (three-quarter paid) shares of the Pelsall Coal and Iron Company are to be had for 5s. 10s., and J. Bagnall and Sons' 10s. shares for 3s. 10s. There are offers for Muntz's Metal shares at 2½ prem., but at this price no sellers appear. The Patent Nut and Bolt Company's shares have changed hands at 6½ prem. The West Cumberland Iron and Steel Company's property could be sold in this district at 13 dis.

It is learned hereabouts with interest that Mr. F. W. North, mining engineer, and son of the Mayor of Dudley, has finished a careful investigation, extending over an area of 3000 square miles, for the government of the coal fields of Cape Colony, and that he has now been instructed by the Lieut.-Governor of Natal to conduct a similar scientific expedition in that colony. This undertaking will occupy about six months.

The Miners' National Union have prosecuted the late secretary of a lodge at Walsall, one William Keeling, 66 years of age, for stealing four guineas belonging to the Union. In April, 1876, Keeling obtained the money from the lodge treasurer on representing that he was about to forward it to the executive. This he never did, and had since absconded. A month's imprisonment was the sentence passed.

Mr. J. H. Bullock, late of the Homer Hill Colliery Company, and formerly of the Darlaston Steel and Iron Company, has taken the place of Mr. B. Bloomer as manager of the Pelsall Coal and Iron Company (Limited).

There is no change to note in the condition of the Coal and Iron Trades of North Staffordshire.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Jan. 10.—Business has in no way improved since the commencement of the year, either in mining or manufacturing. At the lead mines not much has been doing, comparatively speaking, and last year's working will contrast unfavourably with previous ones; but it is not unlikely that there will be a change for the better before very long, at least in our district. There is nothing new to report with respect to pig-iron, the demand being still but moderate, not only as regards the local consumption but for the supply of more distant markets. Some of the foundries have opened out tolerably well, but there is nothing like activity in any direction. House coal has not met with anything like the same enquiry as is usual at this season of the year, so that the collieries are not fully going. This shows how really depressed the trade is, for with thousands of men entirely standing in the North of England, many hundreds in Wales and other places, and short work as the rule, the output of coal, limited as it is, is yet far more than is required.

To London a fair tonnage of house coal has been sent from Clay Cross and other places, where prices are now 1s. per ton less than they were at the end of last year; and there certainly does not appear much probability of a change for the better. Steam coal is still in dull request, not so much being required for general purposes, the supplies for locomotives being without any change. In Sheffield, all the works have not as yet resumed operations, some of them for alterations and additions, and others with respect to fresh terms being entered into with their workpeople. At the two leading limited companies in the town the men have shown every inclination to meet the employers; but at the Northfield works, that have lately come out of liquidation, the terms offered have been refused. There is, however, very little doubt but what the men will come to an arrangement, seeing that they have not much to fall back upon, whilst they cannot expect support from other branches, owing to the number of persons unemployed, and the serious distress which prevails in those parts of the town principally inhabited by ironworkers, and, in some instances, by miners.

There is still every appearance that we shall have a busy time of it in the rolling of Bessemer rails, for almost every maker is said to have orders in hand that will last some time, and those, of course, will be given out, seeing that the price is particularly low, and puts out of consideration the making of ordinary iron rails. In heavy armour-plates there does not appear to be anything doing as yet, and, as has been previously stated, this important branch of the local trade is likely to undergo considerable modification by steel being combined with the iron, as such it is believed can be done, and a greater resisting power presented by thinner plates than at present. In ordinary plates and sheets only a moderate business is being done so far, but an improved demand is now looked forward to. Crucible steel makers have not begun as yet to turn out anything like an average quantity, but at one or two places they are doing a little more in quantities suitable for wheels and axles. One or two of the leading houses have opened out tolerably well in the best qualities of table cutlery, for exportation in particular, but there does not appear to be much doing in inferior descriptions. In ordinary pen and pocket knives there has been no change, and some of the men are far from being fully employed. The foundries are going on tolerably well, but there are very few of them that are

what can be called busy. At Thorncliffe the men engaged at the blast-furnaces have received notice of a reduction, a course adopted by the firm, I believe, for the first time, and will be accepted. At Milton and Elsecar, however, the ironworkers have refused a small reduction, but a few days, in all probability, will find them ready to agree. The Coal Trade of South Yorkshire is in anything but a healthy state just now, although at least fully as good as in any other district, whilst the men are receiving better wages, as a rule, than in the case of any similar body of workmen; prices of every description of coal, however, are very low, and the demand limited. The trade with the Metropolis during the last month was not equal to what it was earlier on. Still sinking is being proceeded with at several places; in one instance, from the Barnsley to the Silkstone seam, a distance of about 330 yards. Steam coal does not go off at all well, so that stocks have to be banked, seeing that the softs, or households, have to be got along with the hards, both being part and parcel of the same seam. At the Oaks Colliery the men resumed work on Monday, a strong indication that Cammella, of Sheffield and Penistone, the proprietors, are about to go on as usual, a new engine in connection with the Bessemer rolling-mill at the latter place having just been put down. At the Dodworth Silkstone Colliery, near Barnsley, the Silkstone pit is only being worked, the Parkgate and Thorncliffe standing until a more active season has set in. With the exception of one place, the wages question has not been mooted in the district, but it is to be feared that we shall hear more about it shortly, seeing that the present prices obtained for coal are the very reverse of remunerative.

REPORT FROM THE NORTH OF ENGLAND.

Jan. 10.—We are now in a position to judge of the results of the year's trading in Cleveland. The statistics of the Ironmasters' Association issued this week show a total production of 2,124,831 tons, as compared with 2,075,565 tons in 1876, being in round figures an increase of 50,000 tons. This result is very gratifying considering that in nearly every other district there has been an absolute decline. But the financial results of the year's trading have been very far from satisfactory. Most firms have carried on their works with more or less of a loss, and now that they have been struggling with adversity for the better part of two years they are at last compelled to succumb to the extent of reducing the output of Cleveland iron to the extent of 5000 to 7000 tons per week. About a dozen furnaces will within the next two or three days be turned out to Bessemer iron or blown out altogether. The stocks now in makers' hands is upwards of 260,000 tons, which represents a capital of at least 600,000l. lying idle and unproductive, and the strain thus created is felt by some firms to be very oppressive. I have already referred to some of the furnaces about to be blown out. To that list I may now add the Consett Iron Company, who are about to take two furnaces off Cleveland iron, and the trustees of Thomas Vaughan and Company, who are about reducing the number of furnaces in blast at Clay Lane. The shipments for the past year are, on the whole, very favourable, the coastwise showing an increase of about 70,000 tons, and the foreign about 7000 tons, on the shipments of the previous year.

Tuesday's meeting on 'Change at Middlesborough was very dull, although it was the first quarterly meeting of the year. Prices did not differ from those of the previous week, the state of trade being such that any natural improvement is almost impossible, while makers took good care that no abatement was allowed. Business, indeed, was as nearly as possible at a dead lock, a few objects of interest to the trade were exhibited, but none of them were of real novelty, and, therefore, they need not be particularised here. It was announced that the ironmasters are about to take measures to classify in their monthly returns the different kinds of pig-iron made in the district. This will enable those interested to find out how much iron is made for forge, foundry, and Bessemer purposes respectively. The total number of furnaces now in blast is 102, and in a week or so the number will be under 100.

The Finished Iron Trade is duller than it was, plates are not so much enquired for, and only a few hundred tons of rails are in hand. Bridge builders and locomotive makers, however, have rather more in hand.

There is no change of situation so far as the Coal Trade is concerned. The continued strike in Northumberland causes a better demand for second-class qualities of Durham steam coal, which have consequently improved in value. The total exports of coal from the north-east ports for the year just ended is less than those of 1876, the Tyne ports alone showing a decline of more than half a million tons. The mineral traffic receipts of the North-Eastern for the last half of 1877 show a decline of nearly 50,000l. Trade appears to be getting worse instead of better, and both among colliers and ironworkers there is a great deal of destitution.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Jan. 9.—A fire which has been raging at the Black Park Colliery for more than a week is now happily extinguished. The Bench coal and Cannel that underlies the Six Feet coal had been ignited by the furnace in the upcast shaft. In the efforts made to extinguish the fire Mr. Darlington, the managing director, and two firemen got badly scalded, and were in danger of losing their lives. They had gone down the shaft on the cage and were engaged in throwing water upon the fire when the volume of steam taking an upward direction scalded them severely. They gave the signal, and were drawn up at once, and are all progressing favourably. The horses and men were all out of the pit for a week.

A fatal accident, which seems as if it were preventable, has occurred at the next colliery to Black Park—the Brynkinnalt. Two men were working at the top of a break, and having loaded a wagon they called out, and receiving no answer they let the wagon go. There was no wagon at the other end of the chain, and the loaded one ran down the incline with great violence into the level, where it struck and killed Thomas Edwards, a roadman. Edwards was a married man with three children, and he also supported an aged father.

One effect of the badness of trade is the abandonment in the Wrexham district of the working of all the seams above the Main coal, it no longer paying to work them. In the Flint and Mostyn district the colliers are only working nine days a fortnight, and it seems somewhat anomalous that coal and slack for the supply of the smelting, chemical, and other works of the district should be brought all the way from Lancashire and North Staffordshire while collieries close by are idle.

There is a large accumulation of Cumberland hematite ore on the quays of Saltney, where it is usually loaded on Great Western trucks; and the few makers of pig-iron who continue making have very large accumulations of stock also. Unless a revival of trade takes place soon more furnaces will be blown out.

Mr. John Eyrie Spooner, the second son of Mr. C. E. Spooner, the well-known engineer of Portmadoc, was interred on New Year's Day. The deceased, who was a promising young man of 26, fell off a bridge in an underground slate quarry to a great depth, about two years ago; and although he recovered from the bruises he met with, his general health was so affected by the accident that he was unable to rally. In his report for 1876 Her Majesty's Inspector of Mines for North Wales (Mr. T. F. Evans) urged the necessity for the fencing of these underground bridges and roads in slate quarries. His recommendations should become binding.

One of the retiring slate quarry proprietors at Festiniog (Major Mathew, of the Rhiwbryddir Quarry), was on the 27th ult. presented by his workmen with a beautiful illuminated address, at the Assembly Rooms, Festiniog. The address expressed the high esteem the men had for their late employer. Major Mathew, in responding, referred to the successful efforts made by his father to introduce Festiniog slate into the Baltic and Northern parts of Europe. After the great fire of Hamburg he went to that town, and prevailed upon the city architect to substitute for "best Bangor slate" "best slates of North Wales," and this led to the introduction of the Festiniog slates to that part of Europe. It would be no harm if the bulk of British architects would make a similar al-

teration in their specifications, for there is still a large amount of unreasoning prejudice against all other slates than those of Carnarvonshire. It would also be well if other workmen than the slate quarry men of Ffestiniog were to take the advice given by Major Mathew to them—to transact their own business with their employers, and never to allow a third party, especially paid agitators to step between them. At the conclusion of the ceremony of presentation Mrs. Mathew made a present of a cheque for 25*l.* to the sick workmen's fund. An advance of 10 per cent. in the price of slates is contemplated.

The Van Consoles Lead and Barytes Company has gone into liquidation. The Van itself goes on steadily with its dividends, and is likely to. The lead mines of Salop and Cardigan are working much as usual. The progress of the Cambrian Mines, in the latter county, is watched with some interest. In Anglesea it is hoped the Parys Mines will answer to the expectation of their owners, and the advent of the first dividend-paying lead mine in Carnarvonshire will be hailed with great joy. Next to that of slates the trade is brisk; tiles and sanitary appliances are at this moment the best in North Wales, and it is likely to continue so. Drainage and water schemes are abundant. Mold is to be drained at a cost of about 7000*l.* So is the mining district of Minera and Brymbo, together with many towns and populous mining districts, of whose existing sanitary arrangements the less said the better.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Jan. 10.—The staple trades show no improvement this week, but the figures quoted below cannot but be taken as satisfactory, showing, as they do, that both coal and iron shipments have increased last month in comparison with the corresponding month of 1876. There is still a large amount of distress in the district among the labouring classes, but now that national sympathy has been aroused subscriptions are flowing in. There is a rumour that the principal creditors of Messrs. Fothergill and Hankey have made such arrangements as will allow of the works being carried on, and if this should prove true it will be a veritable godsend for the inhabitants of the locality. Iron rails are now quoted at such low prices as one would think would secure large orders, but the demand is anything but brisk. There seems to be a little more activity in the demand for bars. Iron shipments have recently gone forward, mainly to India and Brazil. The steelworks are fairly well occupied, and some of the plate establishments in the Swansea valley are working full time, having abandoned the restriction of make which prevailed last year. The year has opened well, with an increase of activity in this department, but it has by no means been extended throughout the district.

As to the Coal Trade, shipments during the last few days have improved, and the reduction in wages will better enable the employers to fight against the low quotations which obtain. The men seem disposed to accept quietly the inevitable in the shape of a reduction in wages, and a little more employment appears to be given at the local pits. The demand for steam coal is moderately good, but, considering the time of year, the demand for house qualities is quiet. Patent fuel is dull, but shipments are improving a little. Coal freights are firmer, and have an upward tendency.

During last month Cardiff cleared 441 tons of iron, compared with 1654 tons in the corresponding month of 1876; and Newport 6125, compared with 2797 tons. The following were the principal clearances made and their destinations:—Adelaide, 937 tons rail; Bahia, 895 rail; Bombay, 2816 rail and 1700 bar; Port Victor, 887 rail; Valencia, 440 rail; Gothenburg, 1331 rail; and Smyrna, 558 bar. In the same periods Cardiff shipped foreign 277,820 tons of coal, against 260,184 tons; Newport, 48,609, against 45,951 tons; Swansea, 54,184, against 54,443 tons; and Llanelly, 4650, against 3570 tons. Coastwise shipments last month were—62,696 tons of coal from Cardiff, compared with 66,048 tons in December, 1876; Newport, 73,428, against 66,048 tons; Swansea, 29,487, against 14,789 tons; and Llanelly, 9556, against 4786 tons. Patent fuel clearances were—Cardiff, 5173, against 9744 tons; and Swansea 8289, compared with 15,004 tons.

Lord Aberdare sends a long letter to the local papers anent the distress in South Wales and the Poor Law question, in the course of which he says that no doubt the closing of Cyfartha was due to the workmen refusing the reduction of wages, on which Mr. Crawshaw plainly told them depended the continuance of his works. Speaking on the question "How far are the people themselves by their own trade rules and want of thrift responsible for their present sufferings?" he says, "My own decided opinion is that many of the trade rules, whether enforced by Unions or by the independent action of the colliers, have forced up the price of coal, and so far tended to contract its use by manufacturers, especially in periods of depression, and that this contraction reacts against the collier, and more than neutralises any temporary advantage he may gain from the trade rule, which in the days when the demand for labour was great he had imposed upon his employers. In the matter of thrift, the collier population has still much to learn," &c. These words coming from one in the high position his lordship occupies should be read not only with interest by the men, but should also "point a moral" for them.

As may be expected, the depression of trade has affected the local railways to a considerable extent, and the Taff Vale shows a great falling off in traffic for the last half-year, as compared with the corresponding half of 1876. On the other hand, the Rhymney shows an increase on the gross earnings of about 8000*l.* The Monmouthshire has, too, no doubt earned the guaranteed dividend of 6½ per cent.

TRADE OF THE TYNE AND WEAR.

Jan. 9.—There has been an increased shipment of coal during the week at the Tyne Docks and other points on the Tyne, and also at the Sunderland Docks and other Wear ports, but several large ships have left here in ballast to ship steam coal at Carlisle, owing to the unfortunate strike in Northumberland. One vessel left a few days ago, which will ship 3000 tons at Cardiff for Alexandria. So much for the result of these strikes; they never fail to inflict grievous injury on all concerned—masters and workmen. Most of the works in Durham are fairly employed, and those producing good gas coal, and some others are working full time. It may be interesting to notice the total exports of coal from the leading ports during the last two years; we extract the following from Browne's Export List:—Tyne ports, 1876, 7,138,639 tons; 1877, 6,627,222 tons; decrease, 511,417 tons. Sunderland, 1876, 3,234,271 tons; 1877, 3,235,099 tons; increase, 828 tons. Cardiff, 1876, 4,384,433 tons; 1877, 4,484,140 tons; increase, 99,707 tons. For many years the trade in coal progressed at those ports, year by year there was a large increase on the previous year; but the tide has now turned, and, although the actual decrease is but small, we know by sad experience what evils decreased trade can inflict. There is, however, no need for undue despondency, there are yet sufficient supplies of coal and iron in the district; and in the cradle of the coal trade the means will not be wanting to raise this coal at a cheap rate, so as to compete successfully with the produce of any other district. There are also fleets of steamers capable of carrying our minerals to all parts of the world. If once those disputes were ended between the masters and the men, and the ruinous war in the East closed, it may be confidently expected that a revival in the coal and iron trades here will shortly follow.

There is little change to note in the position of the Northumberland steam coal works. The men at East Cramlington have had a meeting, when the question was fully discussed, and it was resolved that they should propose that the men should accept a reduction of 7½ per cent., and refer the final settlement of the matter to a committee of masters and workmen. This proposal has, however, not been submitted to the colliery manager at Cramlington, but has been sent to the Miners' Union executive, so that no action may be expected in this movement for some time, if at all. The deputies and other day men employed in the collieries are at work, and if some agreement is not arrived at shortly those men will be requested to commence cutting coal; indeed at some of the works they have already received 14 days' notice that they will be required to cut coal, and that other kinds of work will not be found for them after

that date. An attempt will be made shortly to get men from other districts to work in those mines.

REPORT FROM THE FOREST OF DEAN.

Jan. 10.—The Coal Trade at the leading Forest pits may be said to be fairly active, but the small collieries most of them are at present idle; the character of their seams, and for the most part faulty or creaky machinery, the result of small capital, combined render such works unprofitable, except in times of brisk trade and good prices. The small collieries now referred to, of which a good number exist about the Forest, in general consist of old workings, or of thin seams or measures of very limited area, such as large capitalists would not touch, but which little men in the hope of raising themselves obtain in some instances for a small amount, and when prices for coal are good they work or sell, and in that way secure some remuneration for their investments. Possibly, if the owners of the more valuable small collieries had sufficient capital and brains to purchase and use the best means and methods of developing their properties, the results would be much more encouraging. But some of the small works are not worth spending money upon, as they are sure to lead to disappointment and loss, and yet some such properties are occasionally offered in the market with a view to get up companies, and if success attends the efforts of the promoters and speculators money is sunk and lost, and the district gets a bad character through the tricks of those who decoy the ignorant or unwary into their traps. An attempt to get up a company on an old wreck of a colliery early last year happily failed, but whether the failure was the result of exposure we are unable to say, but the matter was ventilated in the *Mining Journal*. But another attempt that succeeded for a time in another part of the Forest finally collapsed, and the plant was sold off by auction. The sufferers, however, were not entitled to much sympathy, because, although repeatedly warned against the worthlessness of the property, they persisted in spending their money, not believing the warning voice until it was too late.

Capitalists should be on their guard before investing their capital, or they may be practically swindled. There are good properties in the Forest, and there are such as never would pay dividends, more especially of the class already described. The coal gales and iron mines of ample acreage are the properties which should receive the attention of capitalists, as they alone will give reasonable dividends and recoup the necessary outlay for their development. The Parkend Coal Company has just got a new seam at the Royal Colliery, which is looked upon as a very encouraging circumstance for West Dean, as it is hoped that the getting the coal will employ a good number of fresh hands, especially as funds are very inadequate to employ many on the relief works. The rumour about re-starting the thing actually comes to pass, and the small little time further will elapse before activity in that locality will again gladden the surrounding inhabitants.

The tin-plate works at Lydbrook and Sydney are reported as fairly active just now, and with regard to the latter place a former project has been revived—the proposal to erect a number of blast-furnaces for smelting local ore, as the vicinity of Sydney Park is believed to be very rich in iron, and little of the ore has as yet been worked. Some of the ironmasters of South Wales are said to have made offers to join a local firm for that express purpose; but matters, as yet, are only in embryo, and will require—even if it should start with sufficient capital for the purpose—some little time to organise and erect the necessary plant. Should the thing actually come to pass, and trade revive, much coal benefit will arise therefrom. There is also some probability, it is said, of Sedwley Works being re-started at an early date. Matters at the Forest Vale Ironworks have been slack for some time past, but there appears some probability of an improvement. An agent of an American screw firm has paid a visit to the works, and reports the quality of the iron better and more satisfactory than any he had previously examined in visiting nearly a score of other firms, but unless the puddling furnaces were increased in number it is considered doubtful whether the firm could supply what is required—i.e., 1000 tons a month, the order to extend from two to three years. The order could, we venture to think, be executed by the efforts of the owners of the Lydbrook Works, and the owners of Forest Vale Works, being owned by near relatives, if not by Forest Vale Works alone. But nothing we believe has yet been definitely decided one way or the other. Things are still at a low ebb at Cinderford furnaces, but we hope it will not be necessary for the proprietors to resort to a further reduction of wages, seeing that the toilers have great difficulty under present circumstances to make both ends meet.

There is much dissatisfaction among the iron miners of the Crawshaw firm on the introduction of the rock drill, but whether it arises from prejudice and ignorance, or because the men think it will lessen their chances of employment, we have not been able to learn. For ourselves, we certainly think that the prospects of carrying on the business so as to pay depend very much on the introduction of improved methods and machinery, so as to lessen the cost of production, and we regret to hear of opposition being offered in the district to the introduction of such appliances. The Messrs. Brain successfully worked the rock-drill when operations were carried on in the Drybrook Iron Mine. And having mentioned that firm, we may as well report that all the evidence has been given in the dispute as to the water which is alleged to flow into Trafalgar Colliery from the colliery near by—called Speculation—but no decision was arrived at upon completing the depositions last week, nor is it expected that a decision will be arrived at until the evidence has been well considered, with the addresses or reports of counsel on both sides, which may involve the consumption of some weeks.

The date for handing over the Cinderford Waterworks to the local authority by the contractors will expire on the 22nd inst., and as the mains are now being tested, and faulty joints rectified, it is supposed that all will be ready for the said formalities by the date named. As the pressure upon the square inch is great, for forcing the water up the hill, the joints of the pumping apparatus gave way at first, but after further experiments the engines and adjoining pipes are reported satisfactory. No connecting the mains, we believe, will be attempted until the delivery referred to has been effected.

FOREIGN MINING AND METALLURGY.

Official returns show that the imports of pig-iron into France in the first eleven months of last year amounted to 185,000 tons, as compared with 175,000 tons in the corresponding period of 1876, showing an increase of 10,000 tons last year. This difference arose wholly under the head of imports with payment of duty, so that France appears to have found it advisable to purchase abroad the pig worked up last year in her industrial establishments. Of iron and plates 55,000 tons were imported into France in the first eleven months of last year. The corresponding imports in the corresponding period of 1876 were 51,000 tons. As regards steel, the difference in the imports of the last two years has been very slight. The exports of pig and iron from France in the first eleven months of last year amounted to 157,000 tons, as compared with 190,000 tons in the corresponding period of 1876, showing a decrease of 33,000 tons last year, or more than 17 per cent. The French iron trade has remained generally extremely quiet. At Paris the quotation for iron has not varied, it remains at about 7*l.* 10*s.* per ton. The conditions of a treaty of commerce between France and Italy have now been definitely decided on. The Fives Lille Works have some important orders to execute on Russian account; the staff of workmen has accordingly been considerably increased of late.

An adjudication has taken place this week at Brussels—14 lots of material intended for the Belgian State Railways. The Belgian Metallurgical and Colliery Company obtained an order for six first-class carriages at 428*l.* per carriage; also for six mixed first and second-class carriages at 348*l.* per carriage; also for twelve third-class passenger carriages at 227*l.* per carriage. An order for 14 third-class carriages was obtained by the Belgian Company for the construction of engines and plant at 220*l.* per carriage. The direction of the State Railways of Saxony is about to let at Chemnitz, Saxony, a contract for 2400 Bessemer steel tubes. Another contract is about to be let at Brontberg for 120 goods wagons with breaks, and 230 goods wagons without breaks. The North Emperor Ferdinand Railway Company is inviting tenders for the delivery at Vienna of 4000 tons of Bessemer steel rails. The Zone Forges Company is making important additions to and improvements in the plant of its works near Charleroi. It is stated that nearly the whole of the ironwork of the Culera viaduct, in Spain, will be utilised, and that no material loss will fall in consequence upon the contractors, M.M. Eiffel, of Paris.

The New Year has only commenced indifferently for the French coal trade. Colder weather has stimulated the demand for domestic qualities of coal for the time, but the warehouses are soon filled, and no uneasiness is felt on the score of probable supplies. The demand for industrial qualities of coal has continued quiet, and the business effected is done at low prices. At the mines the situation is not better under these circumstances than it was at the close of 1877. In the basin of the Loire there is as usual less dissatisfaction with the current state of affairs than that which prevails in the Nord and the Pas-de-Calais. The Courcelles-Nord Collieries Company has declared an interim dividend of 12*s.* per share for 1877.

The Belgian coal trade presents much the same aspect; it exists, to some extent, on expectations, and no serious revival in business can be reported. As regards domestic qualities of coal, the demand fluctuates a good deal with the variations of the weather. The demand for industrial qualities of coal has become, upon the whole, more active in Belgium, but prices remain very low, and buyers still have matters to a large extent in their own hands. The Union of Collieries, Mines, and Ironworks, in the province of Liège, has just addressed a letter to the Belgian Minister of Public Works, in which regret is expressed that negotiations opened with the railways of Alsace and Lorraine have not been attended with the same success as regards the tariff imposed on Belgian coke as that secured with respect to the tariffs charged on Luxembourg minerals intended for the Liège basin. The Union appeals to the Minister to require from the railways of Alsace and Lorraine tariff reductions in favour

of Belgian coal analogous to those which have been made in favour of the minerals of Esch and Ottange intended for the Liège basin. If this policy is not adopted the Union asks that the advantages which German coke now enjoys on Belgian railways should be withdrawn.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

Since our last report (Dec. 27) the markets were quiet, but latterly they have become more active, and though the business passing is anything but extensive, there is a more hopeful view taken of the future, which is not at all to be wondered at, seeing the very low prices all mining securities have gone to make it almost impossible for any adverse news to have further effect in reducing prices, while an armistice or peace would impart great buoyancy. In shares of iron and coal concerns, Lochore and Capelrude have been in demand, and mark ½ per share advance on the fortnight. Ebbw Vale also ½ better. On the other hand, Cairnbarrie, also Onnos and Cleland, are each ¼ lower, and Scottish Australasian (new) is 3*d.* Nant-y-Glo and Blaenau (def.) were marked 15*d.* for a "take-alien" being a fall of 13*d.* Both classes of Benhar are ½ lower, but only new shares now offer at list price, the others being buyers thereat; sellers 5½. West Cumberland continue dull, about 7 to 8. Ambergate are at 4; Bolsover, Vaughan, B, 3½; ditto (pref.), 20; Chatterley, 35 dis.; Chapel House, 50*s.* to 70*s.*; Chillington, 3½ to 3¾; Carnforth, 115½; Consett, 17½; Henry Briggs, A, 13½; ditto, B, 9; Leeds and Yorkshire, 3; Llay Hall, 7½; Llynvi, Tondra, and Ogmores, 5½; Mersey, 1½ dis.; Nant-y-Glo and Blaenau (def.), 1½; New Blaenau (pref.), 3½ to 4½; Norwegian Titanic, 40; Scottish Australasian, 1½ to 1¾; Sheepbridge, 20½ dis.; Skerres, 5½; Tibbington, 4½; Tredegar, A, 10; ditto, B, 21; Tarncliffe, 9; Ulverston, 5; West Mostyn (def.), 5; Workington, 15; Whitworth, 6 per cent. (pref.), 10½.

In shares of foreign copper concerns, Tharsis are 12*s.* 6*d.* higher, and Huntington 2*s.* 6*d.* Cape unaltered at the ex div. quotation. Rio Tinto Bonds also quoted ex div. Kapunda are wanted at 3*d.*, and no sellers under 1*s.* 3*d.* New Quebrada, 4*s.* 9*d.*; Panulillo, 25*s.* to 35*s.*; Rio Tinto 5 per cent., 50½; Yorke Peninsula, 4*s.* to 6*s.*; and ditto (pref.) 17*s.* 6*d.*. In shares of home mines there has been more business doing. Glasgow Caradon shares are unaltered, also the new shares at 12*s.* 6*d.* to 15*s.* The books of this company are now being made up, and the dividend announced may be expected very soon. South Condor higher at 10½ to 9½ on the satisfactory dividend. Great Retallack unaltered. Penrithal better, it being thought the mine may possibly succeed if the trial now proposed is thoroughly carried out. The other tin shares have been generally dull, but appear not unlikely to come into favour soon again. Great Laxey firmer at 21½ to 22½, on declaration of the usual dividend of 8*s.* per share, with a bonus of 2*s.* per share payable on the 23rd inst. West Tankerville are better on the improved reports from the mine, as well as Glyn and Van Consoles, the reconstruction scheme being likely to succeed. Though mining enterprise in Ireland is now, no doubt, at a very low ebb, still we are glad to understand that the old respected Mining Company of Ireland is likely soon to resume paying dividends. Bampfyde are at 5*s.*; Bryn Alyn, 8; Combarmy, 1*s.* 6*d.*; Killfret, 2*s.* 6*d.*; Leadhill, 9*s.*; Medlyn Moor, 30*s.*; Morfa Du, 1*s.* 3*d.* prem.; Monydd Gerdid, 40*s.*; North Laxey, 6*s.* to 7*s.*; Penrithal, 6*s.*; Rookhope, 17*s.* 6*d.* to 20*s.*; St. Harmon, 35*s.*; Tankerville, 55*s.*; Wicklow Copper, 17*s.* 6*d.*

In shares of gold and silver mines the only alteration is a reduction of 2*s.* 6*d.* on Richmond, but the week's run is very good—£100,000, or £20,000 over the previous week's. Flagstaff have not altered since the resignation of the three directors. Eberhard have declined on an unfavourable telegram from the mine, while Pastorena United are slightly better, the returns for December having improved to 340 ozs., from 324 ozs. Eachquer have hardly improved at all, perhaps because to raise money is the next difficulty to face. Chicago should improve now that satisfactory arrangements have been completed with the Americans. Antioquia are at 12*s.* Cedar Creek, 5*s.* to 6*s.* 3*d.* Chontales, 13*s.* to 13*s.* 6*d.* Emma, 1*s.* 3*d.* to 3*s.* 9*d.* Frontino and Bolivia, 50*s.* Last Chance, 13*s.* 9*d.* I.X.L., 5*s.* to 7*s.* Pastorena United (pref.), 15*s.* Santa Barbara, 25*s.* St. John del Rey, 31*s.* South Aurora, 3*s.* to 5*s.* In shares of oil concerns Young's Paraffin have advanced 3*s.* 9*d.*, and Upland 1*s.* 3*d.* Dalmeny are now quoted, ex div., at 8 to 8½; the report of this company was considered to be extremely favourable, but taking into account the able management it is under, and the low prices current, it is doubtful if the other companies will do as well. Price's Candle, 11½. Runcorn Soap and Alkali, 5½ dis.

Shares of miscellaneous companies are still quiet. New Sombrero Phosphate better—about 8*s.* Birmingham Nut and Bolt are at 50*s.* Hopkins, Gilkes, and Co., 6; ditto (new), 90*s.* Killalee State, 24*s.* Milner's Safe, 7½. Wagon companies' shares unaltered. North of England at 90*s.*; Lancaster, 55*s.*; and Scottish Wagon (new), 87*s.* 6*d.* to 92*s.* 6*d.*. In shares of chemical companies business is more active, prices being as follows:—Hanson's Sewage, 10; Langdale's, 22*s.* 6*d.*; Lawes, 7 to 7½; ditto 7 per cent. (pref.), 9 to 10; and Newcastle, 41*s.* 6*d.*

J. GRANT MACRAE, Stock and Share Broker.

at Offices buildings, Stirling, Jan. 10.

THE YEARS 1877 AND 1878.—Eighteen Hundred and Seventy Seven, another year alike remarkable to 1875 and 1876 for its depressed commercial and political events, has now been passed through with great trials and misfortune. The Eastern Question for over three years has been, month by month, extending its influence, and the magnitude of its results has so far been felt, not only between Turkey and Russia, but by every nation; and, indeed, it may be rightly said by almost every individual directly or indirectly, on the face of the earth. The French political state of affairs during the half-year not only affected the trade and commerce of that country, but also that of Great Britain. Then, again, the deficiency in the last two years' harvest has told much against the prosperity of this country, in having to purchase largely of foreign grain. We have also had the Indian famine ravages in all its intensity, and thus terribly affecting all enterprise. The strikes persistently advocated by the enemies of the working classes, especially during the last three or four years, after the enormous injury inflicted on the general trade of the country, has at last resulted, as might have been expected, in bringing poverty and distress into the very homes of those who were foremost in setting at naught the employers' caution. In the third year of commercial stagnation we still find strikes (not to speak of a great extent perhaps) continuing not only amongst the collieries and ironworks, but forcibly amongst the builders demanding their 9*d.*, 10*d.*, and 10½*d.* per hour—about 7*s.* 6*d.* to 8*s.* 6*d.* per day—or (say) at the rate of 120*l.* to 130*l.* a year. It is no wonder if per foreign masons and builders are now being imported into this country at a considerable reduction on the above rate of wages, consequently the revival of building throughout the country has once more set in.

The fearful depression which has so long continued in the metal and mineral trades, especially in coal, iron, copper, tin, lead, &c., has and is still causing great anxiety amongst producers, many of whom, however, think the time is not far distant when a protection question will have to be discussed in Parliament. Respecting the metallic mining interest in the past year, owing to the very serious fall in the price of lead, copper, and tin, mining shares have been adversely and greatly affected, as will be seen from the subjoined list. In a word, nothing but sad havoc and depreciation have been going on for the past two years in almost every branch of industry, and in nearly every description of stocks and shares, produce, and property. The question now to be considered is how far such a state of things is likely to continue; and are there any good grounds for believing that we have seen the worst, and when may we hope for a bright and prosperous future? Let everyone look around and judge for himself. From all the coincidences of enterprise, energy, and wealth in the country which will aid the nation to again achieve a rapid progress in the future, so that we may all look forward with renewed hope to the New Year.

Below we give a list of some of the leading lead and copper mines, showing the depreciation in their market value during the past year:—

	LEAD MINES.		COPPER MINES.	
	Dec. 31, 1876.	Dec. 31, 1877.	Dec. 31, 1876.	Dec. 31, 1877.
Van	38 to 40	29 to 31	.....	£135,000
East Van	9½ to 10	3½ to 3¾	.....	112,500
Roman Gravel	13½ to 14½	7 to 8	.....	75,000
Minera	22 to 25	15 to 18	.....	63,000
Tankerville	8½ to 9	4 to 4½	.....	54,000
Leadhill	6½ to 7	4½ to 5	.....	40,000
Wye Valley	6½ to 7	2½ to 3	.....	40,000
Swallow	3 to 3½	1½ to 2	.....	37,500
Van Consoles	1½ to 2	¾ to 1	.....	32,500
Great Dyllife	4 to 5	2 to 3	.....	30,000
Groswinton	5½ to 6	4 to 4½	.....	25,000
Derwent	3½ to 4	1½ to 2	.....	24,000
Monydd Gerdid	3½ to 4	1½ to 2	.....	22,000
Llanidloes	2½ to 3	1½ to 2	.....	21,000
Aberdaunt	3 to 3½	¾ to 1	.....	20,000
West Chiverton	18 to 19	13 to 14	.....	15,000
St. Harmon	3 to 3½	1½ to 2	.....	15,000
North Laxey	1 to 1½	¾ to 1	.....	15,000
Glenroy	1½ to 2	¾ to 1	.....	10,500
West Craven Moor	12½ to 13½	9½ to 10½	.....	9,000
Lisburne	65 to 70	55 to 60	.....	4,000
Total	.....	.....	.....	£200,750

From Messrs. PETER WATSON AND Co.'s "Monthly Mining News" for January.

HENRY WIGGIN AND CO.

(LATE EVANS AND ASKIN).

**NICKEL AND COBALT REFINERS,
BIRMINGHAM.****SOUTH WARD MINE.**

ALL PERSONS having any CLAIMS against the SOUTH WARD MINING COMPANY are requested to SEND THEM IN forthwith to—
Mr. T. B. LAWS, St. Andrew House, 28, Cornhill, London.

WANTED.—A CORNISHMAN, at present Resident Manager of a large COPPER MINING and SMELTING ESTABLISHMENT, will be OPEN to a RE-ENGAGEMENT in December. Speaks and writes French and German, and has some knowledge of Spanish. Unexceptionable references.
Address, "Ass. Inst. C.E.," MINING JOURNAL Office, 26, Fleet-street, London.

WANTED.—MINING AGENT, requiring a SITUATION in ENGLAND or WALES. Has had thirty-five years' experience in MINING. First instance, apply to "Omega," MINING JOURNAL Office, No. 26, Fleet street, London, E.C.

LEAD MINING AGENT WANTED.—A steady energetic Man, one acquainted with the Beds in the North of England preferred. Apply, with testimonials, stating age and salary required (none other will be noticed), to "S. S.," Mining World Office, 241, Gresham House, Old Broad street, London.

WANTED, a GOOD SECOND-HAND WATER-WHEEL, 30 feet diameter by 4 feet breast. Particulars and price to be sent to Mr. J. KITTO, Llanidloes, Montgomeryshire.—Jan. 2, 1878.

CARBONATE OF BARYTES IN LUMP.

PROPRIETORS OF MINES AND HOLDERS OF ABOVE may SEND SAMPLES, stating contents of BARYTA and LIME, with prices, &c., to—
JAS. S. MERRY, MINING OFFICES, SWANSEA.

COPPER MINE TO BE LET, for a term of 31 years, in WALES. For particulars, apply "T. E.," MINING JOURNAL Office, 26, Fleet street, E.C.

HOLMBUSH.—SHARES in this MINING COMPANY can be had at 25s. each. Apply to "J.L.," 19, Arundel-street, Coventry-street, London.

FOR SALE, the WHOLE or PART:—
50 CAMBRIAN (Lead) £2 2 6 100 CHAPEL HOUSE..... £2 0 0
30 GRUWYNION 4 2 6 5 D'ERBRY..... 57 10 0
20 GORSEDD & MERLYN 5 0 0 200 PARYS MOUNTAIN... 0 9 0
35 HORNACHOB 0 0 0 300 DON PEDRO..... 0 7 0
Address, H. WILKINS, 3, Heybourne Villas, Tottenham, N.E.

NOTICE.—GEORGE M. HENTY, MANAGER of the COLORADO UNITED MINING COMPANY (late Colorado Terrible Lode Mining Company), having resigned the Appointment, will be OPEN for ENGAGEMENT after the 31st of March next.
Address, Silver Plume, Clear Creek County, Colorado, U.S.A.

GENERAL BRAZILIAN COMPANY.—HOLDERS OF SHARES in this (extinct) COMPANY, their EXECUTORS, or ADMINISTRATORS, will BENEFIT THEMSELVES by SENDING PARTICULARS OF THEIR HOLDINGS to "W. H. C.," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

Address : name, : numbers, : and amount paid upon shares.
Date of last communication from directors of the company.....

MR. THOMAS THOMPSON, JUN., STOCK BROKER, 1, PALMERSTON BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.

Mr. THOMPSON transacts business in every species of Stock Exchange and Mining Securities. Mr. THOMPSON affords reliable information to investors, and can give, when desired, a list of first-class Stocks and Shares, yielding 4 to 10 per cent. dividends upon present prices. Mr. THOMPSON'S weekly Circular may be had on application.

JOHN B. REYNOLDS, STOCK AND SHARE DEALER, 70 and 71, BISHOPSGATE STREET WITHIN, LONDON, E.C. Business transacted at net prices in all kinds of Stocks and Shares. Information concerning various Securities obtainable from all parts of the United Kingdom. Special correspondents can be retained from all mining districts. Mines inspected and reported upon at most moderate charges. Information obtained concerning such shares as are not dealt in on the Mining Market. Established Twenty Years. Bankers—City Bank, London; Messrs. Tweedy, Williams, and Co., Cornwall.

REYNOLDS' "PROSPECTS AND POLICY OF INVESTORS." Now ready, price Sixpence. Compiled to be a special guide to those interested in Tin Mines at the present moment. The reader has before him in a very brief, pithy, and intelligent style reasons for a decided line of action. Illustrated by facts and figures. Forwarded on application to JOHN B. REYNOLDS, Stock and Share Dealer, 70 and 71, Bishopsgate-street Within, London, E.C. Established Twenty Years. Bankers—London: City Bank.—Cornwall: Messrs. Tweedy, Williams, and Co.

WILLIAM B. COBB, STOCK AND SHARE DEALER, 62, CORNHILL, LONDON, E.C. Bankers: The Alliance Bank (Limited).

M. J. S. MERRY, ASSAYER AND ANALYTICAL CHEMIST, SWANSEA.

MINING CIRCULARS AND PAMPHLETS.—INVESTORS HAD BETTER CONSULT the UNDERSIGNED ere they PART WITH THEIR CAPITAL. Good mines are well known, and require no puffing. Forty years' experience in practical mining. R. TREDNICK, Consulting Engineer, Exchange, 66, Coleman-street, London.

GALVANISING SHEET IRON.—In the ordinary method of galvanizing sheets of iron, the sheets, after having been properly cleaned, are passed through a bath of melted zinc or alloy of zinc, each sheet being either guided to and passed between a pair of plain rolls or dipped without the use of rolls under a bar in the pot, as is well understood. The coated sheet after passing from between the rolls or under the bar is guided to the surface of the bath, when it is taken hold of and removed by the tongs of the attendant workman. The invention of Mr. RICHARD HEATHFIELD, of Birmingham, consists in placing an additional pair of rolls in the bath of melted metal in the path of the sheet as it passes from the principal or ordinary rolls, whereby the coating of the sheet is much improved. The axis of the additional pair of rolls is situated in a plane at right angles, or nearly at right angles, to the plane of the ordinary rolls used in galvanizing iron, the said additional rolls being situated a short distance below the surface of the melted metal. Although in practice he has found that one additional pair of rolls is sufficient for ordinary purposes, yet two or more additional pairs of rolls placed in a plane at right angles, or nearly at right angles, to the plane of the ordinary rolls, may be employed where it is deemed desirable.

NICKEL.—Messrs. W. Webb and Co. write: The price of best refined metallic nickel has this day (Jan. 1) been reduced to 4s. per lb., less 2½ per cent. for cash in one month; 1½ per cent. for cash at the end of the quarter, or settlement by acceptance net.

BEDFORD UNITED.—The reports from this mine are very encouraging, and, with a better price for copper, would again figure in the Dividend List. A correspondent sends us an extract of a report made a few days since by a gentleman who had inspected the underground operations. He says:—"I was glad to see the mine looking so well, and the manner in which it is being worked, at the same time that you are opening up more valuable ground monthly than you are taking away. From present appearances, the piece of ground between the 138 and the 137 fm. levels, east of the engine-shaft, will be the best that has been cut out in the mine on the north side, as there is a splendid lode in the 138 end, and also in the mine in the bottom of the 127, full 6 fms. in advance of the bottom level, and when this mine is communicated you will be in a good position to sink the shaft and raise ore to pay for it." This mine, on a parallel lode, and on an expenditure of somewhere about 9000l., returned to the adventurers 54,000l. in dividends. It adjoins the celebrated Devon Great Consols, and was for many years one of the leading investments of the day, giving regular quarterly dividends. The property is well managed, and has lately been converted into a limited liability concern, with a capital of 12,000l., in shares of 1l. each.

A petition has been presented to the High Court of Justice for the winding-up of the Maritime Passengers and Mariners' Insurance Company. A petition has been presented to the High Court of Justice for the winding-up of the Monolithic Fireproof and Sanitary Construction Works. It is announced that Messrs. Harvey, Pearson, and Wild have resigned their seats at the board of the Flagstaff Silver Mining Company of Utah (Limited), and that their resignations have been accepted.

**In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.**

IN the MATTER of the COMPANIES ACT, 1862, and of the AMBROSE LAKE TIN AND COPPER MINING COMPANY (LIMITED).—Notice is hereby given, that ALL CREDITORS of the above-named company are required, on or before the 19th day of January instant, to SEND IN their NAMES and ADDRESSES, and the AMOUNTS and PARTICULARS of their several CLAIMS, to CHARLES WILLIAM CLINTON, the Official Liquidator of the said company, at the Stannaries Court Office, in Truro, within the said Stannaries. FREDERICK MARSHALL, Registrar.
Dated Registrar's Office, Truro, this 9th day of January, 1878.

**In the Court of the Vice-Warden of the Stannaries.
Stannaries of Cornwall.**

IN the MATTER of the COMPANIES ACT, 1862, and of the AMBROSE LAKE TIN AND COPPER MINING COMPANY (LIMITED).—The Vice-Warden has, by an Order made in the above Matter, bearing date the 8th day of January instant, appointed CHARLES WILLIAM CLINTON, of Truro, within the said Stannaries, an Officer of the said Court, to be absolutely the OFFICIAL LIQUIDATOR of the above-named company. FREDERICK MARSHALL, Registrar.
Dated Registrar's Office, Truro, this 9th day of January, 1878.

**In the Chancery of the County Palatine of Lancaster.
Liverpool District.****LITTLE v. BOUNDY.**

TO BE SOLD, BY AUCTION, on Thursday, the 31st day of January, 1878, at 3-30 o'clock P.M., at the Globe Hotel, Whitehaven, by Mr. JAMES JACKSON, ALL that IRON ORE MINE, known as THE ENNERDALE MINE,

In the township of Kelton and Windle, in the parish of Lamplugh, in the county of Cumberland, and about two miles from Rowrah station, on the Whitehaven, Cleator, and Egremont Railway, together with the ENGINE, winding gear, pumps, engine-house, cottages, mine agent's house, workshops, plant, tools, and stores; and also together with the ore on the bank, estimated at about 1100 tons, if not previously sold.

The grant is a very extensive one, comprising about 250 acres, and is held on lease from Lord Londonderry, for 20 years, from the 1st day of June, 1870, on very reasonable terms. A large sum has been expended in opening up the mine, and a considerable quantity of good ore has been obtained.

The property is surrounded by the celebrated mines of Messrs. Baird, who have raised enormous quantities of ore of the best quality, and there is not any doubt the same veins run through this property.

The Rowrah and Kelton Fell Railway crosses the land, giving facility for dispatching the ore at a trifling cost.

For further particulars and conditions of sale, apply to the District Registrar of the Court of Chancery of the County Palatine of Lancaster, at his Office, Municipal Buildings, Dale-street, Liverpool; to the Auctioneer; to Mr. J. C. PARKINSON, Solicitor, Commerce-court, 11, Lord-street, Liverpool; or to T. and T. MARTIN, 48, Castle-street, Liverpool, Plaintiffs' Solicitors.

**IN VOLUNTARY LIQUIDATION UNDER THE COMPANIES ACT, 1862.
THE BANTRY BAY BARYTES QUARRY (LIMITED).**

TO BE SOLD, BY TENDER, ALL THE INTEREST of the above-named company and in certain BARYTES MINES or QUARRY, known as the BANTRY BAY BARYTES QUARRY, Situate and being part of the FARM and LANDS of Dellyglinah, in the parish of Kilmacorney, County of Belle and Bantry, in the county of Cork, together with the MACHINERY and PLANT thereon.

The mines are held under a lease for 31 years from the 1st day of June, 1866, and contain 150 acres or thereabouts.

Orders to inspect the property can be had of the Liquidator, as under. The Liquidator will receive Tenders up to the 1st day of February next, but does not bind himself to accept the highest or any Tender.

The lease may be seen, and particulars had of—
EDWARD ASHMEAD, Liquidator,
10th January, 1878. 62, Cornhill, London.

**FOR SALE, VALUABLE MINING MACHINERY AND PLANT, IN
UNY LELANT, CORNWALL.**

MR. A. BERRYMAN has been instructed to OFFER FOR SALE, BY PUBLIC AUCTION, on Tuesday, the 15th January next, at Eleven A.M., at the PROVIDENCE MINES, in Lots to suit the convenience of purchasers, ALL THE

**MACHINERY, MATERIALS, &c.,
THERROK, CONSISTING OF**

ONE 40 in. PUMPING ENGINE, 9 feet stroke, with TWO 11 ton BOILERS and FITTINGS.

ONE 30 in. STAMPING ENGINE, 9 feet and 8 feet stroke, with TWO BOILERS, 19 tons, 2 fly wheels and wrought-iron shafts, 2 stamps' axles or 32 heads, with heads, lifters, &c.

ONE 28 in. WINDING ENGINE, double acting, 6 feet stroke, with TWO BOILERS, 10 tons and 8 tons, and whim cage.

ONE 20 in. MAN ENGINE, double acting, 8 feet stroke, 1 fly-wheel, 2 wrought-iron shafts, and ONE 8 ton BOLLER and FITTINGS, balance bob, &c.

ONE heavy 10 feet diameter TOOTHWHEEL, with wrought-iron shaft, plunger blocks and brasses.

ONE 6 in. HORIZONTAL ENGINE, 20 inch stroke.

BALANCE BOB at engine, with connecting rod, &c., complete.

Shaft tackle, with 10 feet shive; 20 fms. 4 in. pumps; 50 fms. 5 in. pumps; 40 fms. 6 in. pumps; 40 fms. 7 in. pumps; 60 fms. 8 in. pumps; 60 fms. 9 in. pumps; and 20 fms. 15 in. pumps; windbores; H and doorpieces; pole cases; clack settings, &c., to match; 340 fms. of 5, 6, 7, and 8 in. main rods; balance bob, connecting rods and travelling wheels at main engine; strapping plates; six pulversers; 3 tubes in dry; calciner and water-wheel; a capital weighbridge (weighing up to 10 tons), and house; round buidles and gearing; machine and hand frames; sundry water-wheels, from 8 to 14 ft. diameter; steel wire rope; railroad iron; double-power crab winch; tin kieves, tin chests, wood roofing, launders, 3 smiths' bellows, smiths' tools; miners' tools; 1 lathe (wood bed), and carpenters' tools; beam and scales, capstan rope, two good dials, old wrought and cast iron; and numerous other articles in connection with working an extensive tin mine.

Further particulars contained in an inventory on the mine. Also, the RICH TIN LEAVINGS throughout the mine, being the accumulation of many years, during the greater part of which this has been one of the largest tin-producing mines in the county.

For further information, apply to Capt. HOLLOW, the Manager, on the mine; EDWARD TRYTHALL, the Purser, Penzance; or to the Auctioneer, 28, Clarence-street, Penzance.—Dated Dec. 21, 1877.

**SOUTH PRINCE PATRICK LEAD MINING COMPANY
(LIMITED).**

TENDERS are INVITED for the PURCHASE of the LEASE, PLANT, &c., of the above Mines, situate at Halkyn, near Holywell, Flintshire.

Property may be viewed on application to Capt. JOHN JONES, 12, Panton-place, Holywell.

Tenders to be sent in on or before 15th January, 1878, addressed to A. C. COX, 20, Coleman-row, Birmingham.

The vendor reserves the right to reject the highest or any other Tender.

TO BE SOLD, BY PRIVATE TREATY, a HANDSOME and MINERAL FREEHOLD ESTATE, in the county of MERIONETH, situate two and a half miles from a projected railway from Bala, containing POTTER'S LEAD, SILVER-LEAD, PLATINUM, and GOLD, with a plentiful supply of water power, machinery and plant; also beautifully situated, and well adapted for a gentleman's private residence.

Address, "H.," W. H. Smith and Son, Newagents, Manchester.

FOR SALE, a 14-horse power PORTABLE STEAM ENGINE, with link motion reversing gear, also gear to wind and pump.

A 25-horse power PORTABLE STEAM ENGINE, and a 9½ in. cylinder VERTICAL ENGINE, and combined winding drum.

A 6-ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER.

Apply to—
BARROWS AND STEWART, ENGINEERS, BANBURY.

TWENTY-FIVE H.P. PORTABLE ENGINE, almost new, FOR SALE OR HIRE, or on hire with option of purchase, on moderate terms.

Engines, boilers, and colliery plant, of every description, new and secondhand, always in stock.

J. H. REDDEL AND CO., ENGINEERS, GLASGOW.

WINDING ENGINES, NEW PRINCIPLE, best and most compact in the market. Several pairs ready.

PORTABLE WINDING AND SINKING ENGINES, the cheapest and most convenient and durable.

STEAM CAPSTANS AND HAULING ENGINES. The greatest power in the space of any made.

HORIZONTAL, VERTICAL, AND PORTABLE ENGINES. First-class make and low price.

PUNCHING, SHEARING, DRILLING, AND OTHER MACHINES. Many of the above secondhand, very cheap.

ALEXANDER SMITH, ENGINEER, THE MIDLAND MACHIN STORES.—Offices: PRIOE STREET, DUDLEY.

LOW PRICES OF METALS.—In consequence of the present miserably LOW PRICES OF METALS, I have REDUCED the PRICES of my MINING MAPS. The "MAP OF CAMBRIAN ILLIGAN, REDBUTH, and GWENAP," published at 21s., I will send per book post (free) on receipt of 5s. 2d. "SAINT AGNES DISTRICT," same price.

R. SYMONS, 11, PARADE, TRURO.

MINERALS WANTED.

ADVERTISER requires REGULAR CONSIGNMENTS of GOOD SULPHUR ORE (PYRITES), either cupreous or non-cupreous; also, GOOD BLENDE, and SOFT MANGANESE ORE. Address, "Pyrites," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

EMMENS AND CO. (LIMITED),

MINING ENGINEERS AND MANUFACTURING CHEMISTS.

CHIEF OFFICE.

134, PALMERSTON BUILDINGS, BISHOPSGATE STREET, LONDON, E.C. MINING DEPARTMENT.—The Management of Mines undertaken, and Technical Reports and Surveys made. CHEMICAL DEPARTMENT.—Ores, Minerals, Acids, Salts, Arsenic, Pigments, Dyes, &c., manufactured and dealt in.

JOHN L. M. FRASER,

BERSE COTTAGE, NEAR WREXHAM.

Fourteen years at the Great Minera Mines.

MINES FAITHFULLY REPORTED ON, AND MINING ACCOUNTS CAREFULLY AUDITED.

Mr. E. JACKSON,

Associate of the Royal School of Mines,

ANALYST AND ASSAYER.

Assays or Complete Analyses made of Copper, Silver, Lead, Zinc, Tin, and other Ores. ASSAYING TAUGHT.

106, QUEEN VICTORIA STREET, LONDON, E.C.

Mr. J. H. COLLINS, F.G.S.,

PUBLIC ANALYST for the County of Cornwall and Borough of Penzance, UNDERTAKES the ANALYSIS of all articles of FOOD, DRINK, DRUGS, MINERALS, MANURES, SOILS, or COMMERCIAL PRODUCTS. Also the INSPECTION of MINERAL PROPERTIES. Private Instruction given in Practical Chemistry, Mineralogy, or geology. For terms, apply by letter, 57, Lemon-street, Truro.

WM. W. KENRICK AND CO.

CONTRACTORS.

ROCK BLASTING, SHAFT SINKING, TUNNELLING, MINING, &c., WITH DRILLING MACHINERY, HIGH-EXPLOSIVES, AND ELECTRICITY.—A SPECIALITY.

WORK SOLICITED AT HOME AND ABROAD.

(LONDON OFFICE),

8, VICTORIA CHAMBERS, WESTMINSTER.

MEXICO, NEW MEXICO, ARIZONA, UTAH, NEVADA, AND CALIFORNIA.

F. M. F. CAZIN,

MINING AND CIVIL ENGINEER,

At BERNALILLO, NEW MEXICO, U.S. OF AMERICA,

Has 24 years' experience in Mining and Smelting, and 10 years' experience in American Business and Law, offers his services at moderate charges for Reporting on Mining and other Property in any of the above-named States or Territories; gives correct, safe, and responsible advice as to securing full titles and possession; and, as to best mode of utilising the property, will assist in settling existing difficulties by compromise, and in disposing of developed mining property when held at real value; offers his assistance for securing undeveloped mining properties at home prices. As to care taken in reporting, reference is made to the Mining Journal Supplement, April 1, 1876, containing report on property of the Maxwell Land Grant and Railway Company; as to technical standing, to the prominent men of the trade—compare Mining Journal of Aug. 30 and Nov. 31, 1872, and New York Engineer and Mining Journal, Feb. 28, 1874.

THE BIRMINGHAM WAGON COMPANY

(LIMITED)

MANUFACTURE RAILWAY CARRIAGES AND WAGONS OF EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract. MANUFACTURERS also of IRONWORK, WHEELS, and AXLES. EDMUND FOWLER, Managing Director.

WAGON WORKS.—SMETHWICK, BIRMINGHAM.

G. HUTCHINSON AND CO.,

FORTH BANKS OIL WORKS,

NEWCASTLE-ON-TYNE.

Reg to draw the attention of COLLIERY OWNERS and ENGINEERS to the Oils prepared by their special process. They never clog nor corrode, but keep the bearings cool and clean, and will be found the best and most ECONOMICAL LUBRICANTS at present in the market, being very DURABLE, UNIFORM IN QUALITY, and CHEAP. Prices, from 2s.

SPECIALLY ADVANTAGEOUS RATES FOR LARGE CONSUMERS.

References to many eminent firms who have used them constantly for years, amongst whom may be mentioned Sir W. Armstrong and Co.; Elswick Engine and Ordnance Works, Newcastle; R. Stephenson and Co., Engineers, Newcastle; R. and W. Hawthorn, Engineers, Newcastle; Hawkes, Crawshaw, and Sons, Engineers, Gateshead-on Tyne; Abbot and Co., Engineers, Gateshead-on Tyne. Samples, prices, &c., on application. AGENTS WANTED.

Now ready, price Five Shillings.

THE STOCK EXCHANGE YEAR-BOOK FOR 1878.

By THOMAS SKINNER.

Containing an Account of the Origin, History, and Present Position of Joint-Stock Companies and Public Securities known to the Markets of the United Kingdom. "We have received the 'Stock Exchange Year-Book for 1878,' edited by Thomas Skinner. It contains several extensions and improvements tending to enhance its value as at once the handiest and most complete Dictionary of Reference for the Stocks of all Corporations and Governments dealt in on the Stock Exchanges of London and the Provinces."—Times.

CASELLI, PETTER, and GALPIN, London; and all Booksellers.

BAINBRIDGE'S LAW OF MINES AND MINERALS.

Fourth Edition. Just published in 1 vol., Royal 8vo., 45s. cloth.

A TREATISE ON THE LAW OF MINES AND MINERALS.

By WILLIAM BAINBRIDGE, F.G.S., of the Inner Temple, Barrister-at-Law.

FOURTH EDITION. By ARCHIBALD BROWN, M.A., Edin. and Oxon, of the Middle Temple, Barrister-at-Law.

This work has been wholly re-cast, and in the greater part re-written. It contains also several chapters of entirely new matter, which have obtained at the present day great mining importance.

London: BUTTERWORTHS, 7, Fleet-street, Her Majesty's Law Publishers.

Now ready, post free three stamps.

FACTS AND FIGURES: A Brief Survey and Comparison of the various properties in which the savings of the public find investment, including British and Foreign Stocks, Railways and Mines, Banks, Land and Houses, Gas and Water Works, Shipping, Insurance, Iron and Coal, Telegraph, Tramway, and all Industrial Companies; with reasons for anticipating a speedy revival of activity as soon as the political cloud has passed.

By JOHN R. PIKE, Crown Chambers, Threadneedle-street, London, E.C.

"Mr. Pike's suggestions will, if followed, form a source of great advantage to capitalists."—Mining Journal.

Now ready,

THE TELEGRAPH POCKET-BOOK, DIARY, AND TELEGRAPH CODE FOR 1878, edited by Lieut.-Col. FRANK BOLTON and JAS. SIVEWRIGHT, Esq., contains Tables and Formulae of practical utility to Telegraph Engineers and others. The Telegraph Code will also be found specially convenient to those who need to transmit telegrams to foreign countries.

Price 6s. 6d. in leather pocket-book.

LETTIS, SON, AND CO. (LIMITED), 33, King William-street, E.C.

MAPS OF THE MINES, AND OF UTAH TERRITORY.

FROISETH'S NEW AND REVISED MAP FOR 1875.—Size 40 by 56 inches, scale 8 miles to the inch. Handsomely engraved, colored in counties, showing the Towns, Settlements, Rivers, Lakes, Railroads, Mining Districts, &c., throughout the Territory, and all the Government Surveys to date. Mounted on cloth, 22½ half-mounted, 21 12s., pocket form, 21s.

Also, GENERAL MINING MAP OF UTAH, showing twenty-eight of the principal Mining Districts adjacent to Salt Lake City, and location of the most prominent mines. Price, pocket form, 6s.

Also, NEW MAP OF LITTLE AND BIG COTTONWOOD MINING DISTRICTS, showing the location of over Four Hundred Mines and Tunnel Sites, together with the Mines Surveyed for United States Patent. Price, sheets, 6s.; pocket form, 8s.

For sale, and supplied by—

TRUBNER and Co., 57 and 59, Ludgate Hill, London; or

B. A. M. FROISETH, Salt Lake City, Utah, U.S.

CAPTAIN ABRAHAM FRANCIS

MINING AGENT, ENGINEER, AND SURVEYOR

COGNAC, ABBEYSTWICH.

HUDSWELL, CLARKE, & RODGERS,

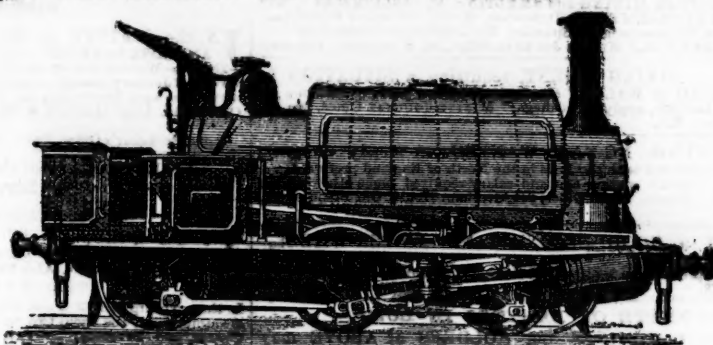
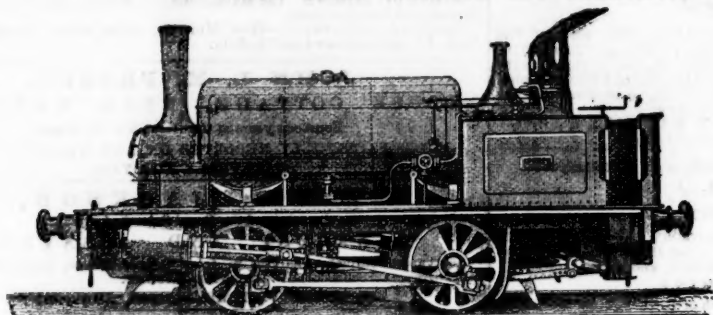
RAILWAY FOUNDRY, HUNSLET, LEEDS,

ARE NOW MAKING A GREATLY IMPROVED
CLASS OF

TANK LOCOMOTIVE,

EITHER ON FOUR WHEELS OR SIX, OF
VARIOUS GAUGES,

IN WHICH EXTRA STRENGTH AND DURABILITY ARE COMBINED WITH SIMPLICITY AND ECONOMY IN REPAIRS.



FIRE BOXES—Copper. TUBES—Brass. TYRES—Steel. AXLES—Steel. BOILER PLATES AND MACHINERY of the best Yorkshire Iron.
NEW LOCOMOTIVES, with Cylinders 8 in., 10 in., and 13 in. diameter, always in stock or in progress. SECOND-HAND LOCOMOTIVES, of various sizes, FOR SALE OR HIRE.
PRICES AND SPECIFICATIONS ON APPLICATION.

MECHANICAL VENTILATION OF MINES.

THE UNION ENGINEERING COMPANY (C. SCHIELE AND CO.) undertake the Construction and Erection of their Colliery Ventilation Fans, of all sizes up to the largest required quantities of air. The leading features of their system are now generally known. Some of the specialties are: The absence of necessity for costly erections in masonry and brickwork; the small space required for the Machines, and the moderate first cost of the whole.

As the Fans are in a great measure self-contained, the necessary seats and connection with Pit are of a simple and inexpensive character. They can be arranged to be placed below ground when required, and also to work on

Drawing Shafts. Certain sizes are often used to assist in Furnaces, with good effect. [Estimates and further information will be prepared on receipt of the necessary particulars].

FOR SINKING PURPOSES, and also for places where small quantities of air are needed for Ventilating purposes, a Special Fan is made, in various sizes, with small engine combined, complete, arranged for both forcing and exhausting air.

NOISELESS BLOWING FANS, for Smithy Fires, and other purposes.

TURBINE WATER-WHEELS, specially designed and adapted for use in Coal Mines, for high falls of water, for the purpose of developing water power, where it is available, for use in hauling, pumping, and other works.

The Firm, having had an experience of nearly twenty-five years exclusively in the above Special Departments of Engineering, are prepared to advise on any matter affecting the application of Fans or Water Power in Collieries or elsewhere.

COAL-CUTTING MACHINERY, WINDING, HAULING, AND OTHER DESCRIPTIONS OF STEAM-ENGINES.

THE UNION ENGINEERING COMPANY (C. SCHIELE & CO.),
PNEUMATIC AND HYDRAULIC ENGINEERS,

(SOLE PROPRIETORS AND MAKERS OF SCHIELE'S LATEST PATENTS),

2, CLARENCE BUILDINGS, BOOTH STREET, MANCHESTER.

A S B E S T O S ,

THE BEST MATERIAL FOR THE

Steam Joints of Locomotives, Marine and Stationary Engines, Boilers, &c.,

IT IS MANUFACTURED ENTIRELY PURE, AND OF THE BEST AND STRONGEST QUALITIES, INTO

M I L L B O A R D ,

FOR STEAM, WATER, GAS, AND ACID JOINTS.

FURTHER PARTICULARS AND PRICES OF THE UNDERSIGNED,

SMITH, FLEMING, AND CO.,

17 AND 18, LEADENHALL STREET, LONDON, E.C.

SOLID DRAWN BRASS BOILER TUBES

FOR LOCOMOTIVE AND MARINE BOILERS

EITHER

MUNTZ'S OR GREEN'S PROCESS

MUNTZ'S METAL COMPANY (LIMITED),

FRENCH WALLS,

NEAR BIRMINGHAM.

H. WATSON,

HIGH BRIDGE WORKS,

NEWCASTLE-UPON-TYNE.

MANUFACTURER OF EVERY DESCRIPTION OF

Engineering Fittings, Colliery Pump Working Barrels, Boiler Alarm Whistles, and Fire Engines.

IRON, COPPER, AND BRASS TUBING.

Gun Metal and Brass Castings of any size.

MALLEABLE BRONZE PRICKERS & BLASTING APPLIANCES

SAFETY-LAMPS.



1.—DAVY.

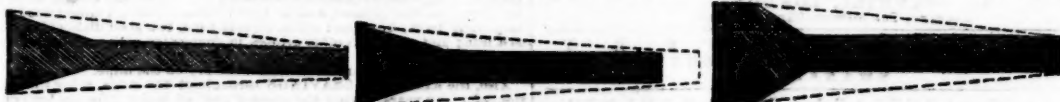
2.—STEPHENSON.

3.—CLANNY.

N.B.—The whole of these Lamps are made by workmen who have had great experience, and pass through a careful examination before being sent out. I also SUPPLY BRASS, COPPER, and COMPOSITION STEMMERS and PRICKERS, as embodied in the Mines Regulation Act, and made of such lengths best adapted for Mining purposes.

TO COLLIERY PROPRIETORS.

IMPROVED "REGISTERED" SECTIONS OF SCREEN STEEL.



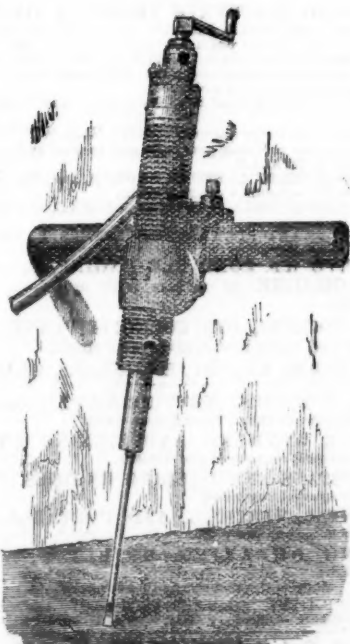
THE DOTTED LINES SHOW THE ORDINARY SECTION, AND THE DARK GROUND THE IMPROVED SECTIONS.—A saving of at least 30 per cent. is effected by the great reduction in weight of material.—For price and particulars apply to—

JOEL EATON WALKER, STEEL MERCHANT, SHEFFIELD.

NOTICE.—These Sections are Registered.

DARLINGTON" ROCK BORER.

NO VALVE.



SCREW, OR CRADLE MOUNTED, BORING MACHINES.

AIR COMPRESSORS, DRIVING AND SINKING APPARATUS.

JOHN DARLINGTON, 2, COLEMAN-STREET-BUILDINGS,
MOORGATE STREET, LONDON, E.C.



MALLEABLE IRON CASTINGS,

Every Description.

W. B. MAPPLEBECK, JUN.

21 AND 22, LOVEDAY STREET,

BIRMINGHAM.

RAILS FOR SALE.

Bridge Section, 10 to 25 lbs. per yard.

Flange Section, 16 to 70 lbs. per yard.

DH Section, 50, 60, to 70 lbs. per yard.

Steel Rails, 30, 36, 54, 58, to 66 lbs. per yard.

NEW PERFECT, NEW DEFECTIVE, AND SECONDHAND IN STOCK.

PERMANENT WAY RAILS, of all sections, made to order.
For sections and price, apply to—

ROBERT WRIGHTSON
NEWPORT, MON.

JOHN BEATSON, DERBY.



IRON AND STEEL RAILS, of all sections, from 10 to 82 lbs. per yard, new, defective, or second-hand.

POINTS AND CROSSINGS, FISH PLATES, BOLTS, NUTS, CHAIRS,

AND SPIKES. LOCOMOTIVE ENGINES AND MACHINERY.

MALLEABLE AND PIG-IRON OF ALL KINDS.

Delivered at all Ports and Railway Stations in Great Britain.

A SECONDHAND SIX-WHEELED TANK LOCOMOTIVE FOR SALE.

NOBEL'S DYNAMITE

Is the MOST ECONOMICAL and POWERFUL EXPLOSIVE for every kind of MINING and QUARRYING OPERATIONS; for blasting in hard or soft, wet or dry ROCKS; for clearing land of TREE ROOTS and BOULDER STONES; for rending massive BLOCKS of METAL; for SUBAQUEOUS and TORPEDO purposes; and for recovering or clearing away of WRECKS, &c.

ITS SAFETY is evidenced by the total ABSENCE OF ACCIDENTS in transit and storage; it is insensible to heavy shocks its GIANT POWER being only fully developed when fired with a powerful percussion detonator, and hence its great safety.

As a SUBSTITUTE FOR GUNPOWDER its advantages are the GREAT SAVING OF LABOUR, rapidity and INCREASE OF WORK done, FEWER and smaller BORE-HOLES required, greater depth blasted, safety in use NO DANGER FROM TAMPING, absence of smoke, unaffected by damp, &c.

For information, apply to the—

NOBEL'S EXPLOSIVES COMPANY (LIMITED), GLASGOW;

OR AT THE

London & Export Office, 85, GRACECHURCH STREET, LONDON, E.C.

WET GUN COTTON

Is perfectly unflammable and insensible to the heaviest blows. It can only be fired in a bore-hole by using a special primer and detonator. Its strength is superior, weight for weight, to every known explosive, and it gives off no injurious taste or fumes.

Sold in cartridges ready for use in wet or dry ground at 1s. 6d. per lb.

PRIMERS AND DETONATORS SOLD SEPARATELY.

For further information apply to—

THE PATENT SAFETY GUN COTTON COMPANY, LIMITED,
STOWMARKET,

SOLE MANUFACTURERS OF ABEL'S GUN COTTON.

LONDON EXPORT OFFICE, 2, NEW BROAD STREET.

TONITE, OR COTTON POWDER.

THE SAFEST, STRONGEST, AND CHEAPEST OF ALL EXPLOSIVES.

Recommended to MINERS, PIT SINKERS, QUARRYMEN, and CONTRACTORS as the MOST EFFICIENT and ECONOMICAL BLASTING AGENT ever invented.

Results of practical experience show a saving of from 15 to 20 per cent. over the strongest explosives previously in use.

It saves labour in drilling holes, as a less number of holes are needed.

It does not require thawing, but is ready for use at all temperatures and in all climates.

It can also be advantageously used in breaking up boulders, extracting stumps, removing wrecks, exploding terpedos, and for submarine purposes in general, as well as for signal lights and fog signals for ships.

OFFICES:

23, QUEEN ANNE'S GATE, LONDON, S.W.
WORKS: FAVERSHAM, KENT.

Agents: DINEEN, SON, and Co., Leeds; JOHN RUSSELL, Whitehaven; R. J. CUNNACK, Helston, Cornwall; J. and W. SMITH, Chapel-en-le-Frith; W. VEITCH, Jedburgh, N.B.

THE TUCKINGMILL FOUNDRY COMPANY
(TUCKINGMILL FOUNDRY AND ROSEWORTHY HAMMER MILLS),
CAMBORNE, CORNWALL,
Engineers, Iron and Brass Founders, &c.,
MAKERS OF EVERY DESCRIPTION OF
MINING MACHINERY, SHOVELS, GEARWORK,
PUMPING, WINDING, AND STAMPING ENGINES.

BLAKE'S STONE BREAKERS.

SOLE MAKERS OF

BORLASE'S PATENT ORE-DRESSING MACHINES AND PULVERISERS.

ESTIMATES GIVEN UPON INDENTS AND SPECIFICATIONS.

ILLUSTRATED CATALOGUES POST FREE ON APPLICATION.

LONDON OFFICE: 85, GRACECHURCH STREET, E.C.

PATENT

HAND-POWER ROCK DRILL.

IMMENSE SAVING OF TIME AND LABOUR.

STEAM POWER AND SKILLED LABOUR DISPENSED WITH.

PRICE COMPLETE, £50.

MOUNTED ON SUITABLE STANDS FOR SINKING, DRIVING, AND OPEN QUARRY WORK.

"TIMES," November 29th, 1877.

"Enough was done to demonstrate that the machine was well calculated to take its place in Mining and Quarrying Operations, and to successfully supersede for most purposes the slow and tedious process of hand-boring."

HAND-POWER ROCK DRILL COMPANY

(LIMITED).

THOS. B. JORDAN, SON, & MEIHE.

63, QUEEN VICTORIA STREET, LONDON, E.C.

EMMET'S

A1 PATENT BRICK MACHINE.

Massive; durable; cheap; takes little power, and gives PERFECT SATISFACTION.

This is the ONLY Machine which presses the Brick equally on BOTH sides, each plunger entering the mould plate $\frac{1}{8}$ in., and turning out 12,000 SQUARE, SOLID, PRESSED Bricks per day, READY AT ONCE FOR THE KILN.

SOLE MAKERS—

YEADON AND CO.,

CROWN POINT FOUNDRY, LEEDS.
Makers of EVERY DESCRIPTION of Colliery and Brick Yard Plant.

LONDON AGENTS—

HAUGHTON AND CO., No. 122, CANNON STREET, E.C.

CONTINENTAL AGENTS—

PLAMBECK AND DARKIN, 171, QUEEN VICTORIA ST., E.C.

"Kainotomon" Rock Drill

SELECTED BY THE

BRITISH, PRUSSIAN, & SAXON
GOVERNMENTS.

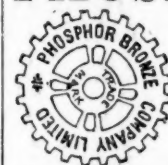
SUPERIOR
Air-Compressors, Coal-
Cutters, Pumps, and all
Mining Machinery.



Secondhand ROCK DRILLS
BRYDON AND DAVIDSON'S
make £25 each new £32

T. A. WARRINGTON,
30, King-street, Cheapside,
LONDON E.C.

THE PHOSPHOR BRONZE COMPANY (LIMITED).



139, CANNON STREET, E.C
LONDON.

Alloy, No. II., for pinions, ornamental castings, steam fittings, &c. £120 per ton.
" No. IV., for pinions, pumps, valves, linings, cylinders, &c. 130
" No. VI. (must be cast in chill) for bolts, &c. 140
This alloy has very great tensile strength ...
" No. VII., for hydraulic pumps, valves, and plungers, piston rings, bushes and bearings, for steel shafts 140
" No. XI., special phosphor-bronze bearing metal, wearing five times as long as gun metal 112

The prices of castings vary according to the pattern, the quantity required, and the alloy used.

WIRE ROPES, TUBES OF ALL DESCRIPTIONS, &c.

CRAVEN AND SPEEDING BROS., MANUFACTURERS OF EVERY DESCRIPTION OF WIRE AND HEMP ROPES

FOR

COLLIERIES, RAILWAYS AND SHIPPING, &c.

Charcoal and Steel Wire Ropes (Flat and Round), of best selected Charcoal and Steel Wire.

Guide Rods.

Galvanised Wire Signal Cord.

Galvanised and Plain Strand for Fencing.

Galvanised Wire Rope for Ships' Rigging.

Chains, Wire Rope Pulleys, Brattice Cloth, &c., &c.

Hemp Crab Ropes, of best selected Petersburg and Italian Hemp

Ditto Flat Ropes ditto ditto

Ditto Cordage ditto ditto

Manilla Rope, White and Tarred.

Flax Spun Yarn and Dressed Flax, for Packing.

Brown and White Spun Yarn.

Fine Dressed Petersburg and Italian Hemp, &c., &c.

Ships Rigging fitted to order. Estimates and special quotations supplied on application to

CRAVEN & SPEEDING BROS.,
Wear Hemp and Wire Rope Works,
SUNDERLAND.



By a special method of preparation, this leather is made solid, perfectly close in texture, and impermeable to water; it has, therefore, all the qualifications essential for pump buckets, and is the most durable material of which they can be made. It may be had of all dealers in leather, and of—

I. AND T. HEPBURN AND SONS,

TANNERS AND CURRIERS, LEATHER MILLBAND AND HOSE PIPE

MANUFACTURERS,

LONG LANE, SOUTHWARK, LONDON

Prize Medals, 1851, 1855, 1862, for

MILL BANDS, HOSE, AND LEATHER FOR MACHINERY PURPOSES.

Second Edition. Just published, price 8s. 6d.

A NEW GUIDE TO THE IRON TRADE

OR, MILL MANAGERS' AND STOCK-TAKERS' ASSISTANT;

Comprising a Series of New and Comprehensive Tables, practically arranged to show at one view the Weight of Iron required to produce Boiler-plates, Sheet-Iron, and Flat, Square, and Round Bars, as well as Hoop or Strip Iron of any dimensions. To which is added a variety of Tables for the convenience of Merchants, including a Russian Table.

By JAMES ROSE.

Batman's Hill Ironworks, Bradley, near Bolton.

OPINIONS OF THE PRESS.

"The Tables are plainly laid down, and the information desired can be instantly and accurately obtained."—Mining Journal.

"900 copies have been ordered in Wigan alone, and this is but a tithe of those to whom the book should commend itself."—Wigan Examiner.

"The work is replete on the subject of underground management."—M. BANK Colliery Proprietor.

To be had on application at the MINING JOURNAL Office, 26, Fleet street, London.

Just Published, Free Edition.

GUIDE TO HEALTH; OR, ADVICE AND INSTRUCTIONS FOR THE CURE OF NERVOUS DEBILITY.—A New Medical Work on the Treatment of Local Debility, Consumption, Loss of Memory, Physical Depression, Indigestion, and all diseases resulting from loss of nerve power. Illustrated with cases and testimonials. Sent free for two stamps.—Dr. SMITH will, for the benefit of country patients, on receiving a description of their case, send a confidential letter of advice.

Address, Dr. H. SMITH, 8, Barton-crescent, London, W.C.

THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk. Clos. pr.	Total divs. For sh. Last pd.	Last pd.
1500	Alderley Edge, c, Cheshire	10 0 0	—	12 11 0	5 0 0 Jan. 1876
30000	Bampfylde, c, i, Devon	1 0 0	—	0 0 0	20 0 0 June 1873
4000	Brookwood, c, Buckfastleigh	1 10 0	—	3 10 0	20 0 0 Nov. 1875
2000	Bryn Alyn, i, Denbigh	10 0 0	—	0 7 0	7 0 0 Jan. 1877
5400	Cashwell, i, Cumberland	2 10 0	—	1 9 0	20 0 0 Aug. 1876
1000	Carn Brea, c, i, Illogan	26 7 6	—	308 0 0	1 0 0 Feb. 1874
2450	Cook's Kitchen, i, Illogan	24 4 0	—	11 17 0	7 0 0 Jan. 1873
10240	Devon Gt. Consol, c, Tavistock	1 0 0	—	116 15 0	5 0 0 July 1877
4296	Dolcoath, c, i, Camborne	10 14 10	—	112 1 3	5 0 0 Dec. 1877
8000	East Black Craig, i, Scotland	5 0 0	—	0 10 0	10 0 0 Feb. 1877
300	East Darren, i, Cardiganshire	32 0 0	—	235 10 0	1 0 0 Aug. 1876
6100	East Pool, i, i, Cardigan	0 9 9	—	16 4 0	2 0 0 Dec. 1877
40 000	Glasgow Carr, c, (30,000 £1 p. 10,000 15s. p.)	1 1 1	—	0 12 10	0 6 0 Mar. 1877
7800	Gorsedd and Merilyn Consol, i, Flint	2 10 0	—	0 5 0	5 0 0 Aug. 1877
18000	Great Lyllye, i, i, Montgom.	4 0 0	—	0 2 0	2 0 0 Apr. 1876
18000	Great Lyllye, i, i, Montgom.	4 0 0	—	22 13 0	10 0 0 Oct. 1877
615	Gt. Retallack, i, i, Perranzabuloe	5 18 6	—	0 1 0	1 0 0 May 1876
25000	Gt. West Van, i, i, Cardigan	2 0 0	—	0 2 0	1 0 0 Aug. 1874
8400	Green Hurth, i, Durham	0 6 0	—	1 15 0	3 0 0 Aug. 1877
20000	Groegwion, i, i, Cardigan	2 0 0	—	0 12 0	4 0 0 Feb. 1877
9850	Gunsilake (Clitters), i, i, t, s	8 5 0	—	0 13 9	1 0 0 Oct. 1876
1024	Herdolake, i, near Liskeard	8 10 0	—	62 5 0	0 15 0 Oct. 1872
18000	Hington Down, c, Calstock	0 5 0	—	0 1 0	1 0 0 Nov. 1876
80000	Holmbush, c, c, i, Callington	1 0 0	—	0 4 0	0 6 0 Sept. 1877
2800	Isle of Man, i, Isle of Man	25 0 0	—	82 5 0	0 0 0 Feb. 1876
20000	Leadhills, i, i, Lanarkshire	6 0 0	—	54 10 0	1 0 0 Oct. 1877
400	Leaburn, i, i, Cardiganshire	18 10 0	—	0 9 0	4 0 0 Nov. 1876
14000	Llanidloes, i, i, Montgomery	0 16 0	—	0 17 6	0 4 0 Jan. 1874
6120	Lovell, i, i, Wenden	0 16 0	—	7 15 0	0 2 0 Jan. 1876
9000	Marke Valley, c, i, Llanidloes	5 3 6	—	57 2 0	0 3 0 Oct. 1877
9000	Minera Mining Co, i, i, Wrexham	8 0 0	—	25 15 0	0 3 0 Jan. 1877
20000	Mining Co of Ireland, c, i, t	7 0 0	—	1 10 0	1 0 0 Jan. 1877
444	North Bury, c, i, Chacewater	2 1 0	—	1 12 8	0 2 0 July 1877
10280	North Bury, c, i, Chacewater	2 1 0	—	0 9 0	0 9 0 July 1877
6000	Pedn-ar-drea Consol, i, i, Redruth	0 8 6	—	0 5 0	0 5 0 July 1877
6000	Pennalls, i, i, St. Agnes	3 2 6	—	0 5 0	0 5 0 July 1877
6000	Pennant, i, i, St. Agnes	6 0 0	—	0 2 0	0 8 0 Nov. 1876
45793	Pennarth, i, i, t, c, Gwynedd	2 0 0	—	0 2 0	0 8 0 Nov. 1876
12000	Phoenix, i, i, t, c, Llanidloes	5 7 3	—	0 2 0	0 4 0 Nov. 1872
18000	Prince Patrick, i, i, Holywell	1 0 0	—	0 14 0	1 0 0 Jan. 1876
16000	Red Rock, i, i, Cardigan	2 0 0	—	0 2 0	2 0 0 July 1877
12000	Roman Gravel, i, i, Salop	7 10 0	—	7 10 0	0 8 0 Jan. 1877
512	South Cardon, c, i, St. Cleer	1 5 0	—	74 10 0	0 2 0 Dec. 1877
6128	South Cardon, c, i, St. Cleer	6 8 6	—	3 5 0	0 7 0 Jan. 1878
12000	St. Harmon, i, i, Montgom.	3 0 0	—	0 6 0	0 3 0 July 1877
10000	St. Fr. Patrick, i, i, (8000 sh. issued)	1 0 0	—	0 7 0	1 0 0 Oct. 1875
12000	Tankerville, i, i, Salop	6 0 0	—	0 17 0	0 5 0 Dec. 1876
12000	Tantrio, c, i, Pool, Illogan	9 0 0	—	50 8 0	5 0 0 May 1877
15000	Van, i, i, Llanidloes	4 8 0	—	22 15 0	0 12 0 Jan. 1878
500	W. Chiverton, i, i, Perranzabuloe	12 10 0	—	55 0 0	0 10 0 Jan. 1877
1750	West Poldice, St. Day	10 0 0	—	1 19 0	0 4 0 July 1876
512	West Tolgus, c, i, Redruth	95 10 0	—	28 5 0	0 10 0 Dec. 1877
2045	West Wh. Frances, i, i, Illogan	28 1 3	—	3 12 0	0 8 0 Oct. 1872
12000	West Wye Valley, i, i, Montgom.	3 0 0	—	0 13 0	0 3 0 Nov. 1877
1024	Wh. Eliza Consol, i, i, St. Austell	3 0 0	—	15 10 0	1 0 0 Oct. 1877
2045	Wh. Eliza Consol, i, i, St. Austell	2 13 10	—	0 5 0	0 5 0 July 1876
4296	Wh. Eliza Consol, i, i, St. Austell	5 4 6	—	11 19 0	0 5 0 July 1876
25000	Wh. Newton, c, i, St. Austell	1 0 0	—	0 8 0	0 4 0 July 1874
80	Wh. Owles, i, i, St. Austell	88 5 0	—	522 10 0	0 4 0 Aug. 1872
6000	Wh. Prussia, i, i, Redruth	0 5 0	—	0 4 0	0 4 0 July 1877
25000	Wicklow, c, i, i, Wicklow	2 10 0	—	52 9 0	0 2 0 Mar. 1872
10000	Wye Valley, i, i, Montgom.	3 0 0	—	0 10 0	0 4 0 Oct. 1876

FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk. Clos. pr.	Total divs. For sh. Last pd.	Last pd.
35500	Almaden, i, Spain	2 0 0	—	1 18 3	0 1 0 Oct. 1877
80000	Almaden and Tinto Consol, i, t	1 0 0	—	0 6 3	0 1 0 May 1876
20000	Australian, c, South Australia	7 7 6	—	0 19 6	0 1 0 June 1876
10000	Battle Mountain, c, (6240 part pd.)	5 0 0	—	0 10 0	0 10 0 Nov. 1877
15000	Birdseye Creek, c, California	4 0 0	—	0 14 0	0 2 0 June 1874
12800	Burra Burra, c, i, So. Australia	5 0 0	—	70 0 0	0 10 0 Oct. 1872
20000	Cape Copper Mining, i, i, So. Africa	7 0 0	—	29 12 0	0 17 0 Dec. 1877
34433	Cedar Creek, c, California	8 0 0	—	0 8 0	0 6 0 June 1873
18000	Cosena Sul. Co., Romanga, Italy	10 0 0	—	0 10 0	0 3 0 Aug. 1877
18000	Chicago, c, i, California	10 0 0	—	0 13 0	0 2 0 Nov. 1876
65000	Colorado United, c, i, Colorado	5 0 0	—	0 13 0	0 4 0 Jan. 1878
10000	Colapso, c, i, Chile (200 shares)	16 15 6	—	7 11 5	0 3 0 May 1877
100000	Don Pedro North of the Bay	0 10 0	—	2 8 0	0 2 0 Mar. 1872
28500	Eberhardt & Aurora, c, Nevada	10 0 0	—	1 8 0	0 3 0 Dec. 1877
7000	English and Australian, c, St. Aust.	2 10 0	—	2 15 0	0 1 0 Mar. 1877
80000	Flagstaff, c, i, Utah	10 0 0	—	0 2 0	0 5 0 July 1873
20000	Fortuna, i, Spain	2 0 0	—	0 14 0	0 6 0 Oct. 1877
45000	Frontino & Bolivia, c, New Granada	2 0 0	—	0 1 0	0 1 0 June 1876
8000	Gold Run, i, i, Australia	1 0 0	—	0 2 4	0 4 0 Oct. 1872
68000	Kapunda Mining Co. Australia	1 3 0	—	0 2 4	0 6 0 June 1873
90000	Last Chance, c, i, Utah	5 0 0	—	0 14 0	0 3 0 July 1873
15000	Linaros, i, Spain	3 0 0	—	17 3 0	0 6 0 Oct. 1877
65000	London and California, c, i	9 0 0	—	0 1 0	0 1 0 Oct. 1877
787	Lusitania, Portugal (25 sh.)	3 10 0	—	1 11 6	0 1 0 Mar. 1873
5000	Mamm. Copperopolis of Utah, c, i	10 0 0	—	0 8 0	0 5 0 Dec. 1872
8000	Mountain Chief, c, i, Utah	10 0 0	—	0 4 0	0 4 0 Jan. 1878
10000	Pontgibaud, c, i, France	20 0 0	—	25 8 0	1 11 0 Nov. 1877
100000	Port Phillip, c, i, Clunes	1 0 0	—	1 9 0	0 1 0 Sept. 1877
54000	Richmond Consol, c, Nevada	5 0 0	—	3 16 0	0 7 0 Nov. 1877
40000	Santa Barbara, c, i, Brazil	0 10 0	—	0 3 0	0 7 0 Nov. 1877
120000	Scottish Australian Mining Co. i	1 0 0	—	15 0 0	15 0 0 Nov. 1877
8000	Scottish Austral. Mining Co. New	0 8 0	—	15 0 0	15 0 0 Nov. 1877
115000	Sierra Buttes, c, California	2 0 0	—	1 18 0	0 2 0 Oct. 1877
40000	South Aurora, c, Nevada	5 0 0	—	0 14 0	0 2 0 Nov. 1873
250000	St. John del Rey (25 stock & multiples dealt in)	300 320	—	1 18 0	30 0 0 Dec. 1876
20000	Tollins, c, i, So. America	5 0 0	—	0 11 0	0 6 0 May 1874
25000	Victoria (London), c, i, Australia	1 0 0	—	0 11 0	0 10 0 Aug. 1876
15000	Western Andes, c, i, New Granada	5 0 0	—	0 12 0	0 12 0 July 1876
21000	W. Prussian (5000 pref. sh. 10s. pd.)	10 0 0	—	1 8 0	0 4 0 Jan. 1878

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last wk. Clos. pr.	Total divs. For sh. Last pd.	Last pd.
5000	Anguilla Phosphate, West Indies (4000 issued)	10 0 0	—	—	—
18000	Argentine, c, Argentina Republic	5 0 0	—	3 0 0	2 1/2 3 Fully pd.
8000	Bellavista, c, Peru (210 shares)	10 0 0	—	—	—
8000	Blue Tent, i, i, California	5 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
4995	Chomona, c, i, Nicaragua	2 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
16000	Condes of Chili, c, i, Chile	5 0 0	—	2 1/2 3	2 1/2 3 Fully pd.
20000	Exchequer, c, i, California	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
100000	Exchequer, c, i, California	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
40000	Holcombe Valley, c, i, California	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
8000	Hornos, c, i, Spain	10 0 0	—	15 0 0	11 12 Fully pd.
19000	Hultafall, i, i, Orebro, Sweden	5 0 0	—	10 1/2 3	9 10 Fully pd.
19000	Hunter Consolidated, c, i, Utah	10 0 0	—	10 1/2 3	9 10 Fully pd.
50000	Imperial Brazilian Collieries, Brazil	5 0 0	—	—	—
10000	I. L. L., c, i, California	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
8000	Javali, c, i, Nicaragua	2 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
3500	La Mancha, i, Newfoundland	10 0 0	—	—	—
12000	Lanestosa, i, i, Viscaya, Spain (23 shares)	1 15 0	—	—	—
75000	Malabar, c, Colombia (7748 issued)	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
40000	Malpaso, c, Colombia (7400 pref. shares, fully paid)	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
12000	Menzenberg, c, i, Germany	5 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
4588	New Bessberg, i, i, Germany	5 0 0	—	—	—
65000	New Quebrada, c, i, Venezuela	5 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
20000	New Zealand Kapanga, c, i, Coromandel	5 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
8000	Oregon, c, i, Oregon, U.S. (preference shares)	5 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
50000	Paulidillo, c, i, Chile (28000 debentures)	4 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
50000	Pastorena United, c, i, Italy	4 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
50000	Providencia and New Rosario, c, i, Mexico	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
50000	Rio, c, i, Colombia (40000 issued)	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
22,181,000	Rio Tinto, c, i, Brazil, Spain	Stock	—	51 0 0	49 51 Fully pd.
100000	Rosa Grande, c, i, Brazil (21 shares)	0 10 0	—	3 1/2 3	3 1/2 3 Fully pd.
30000	Russia Copper, Oreburg and Ufa	0 10 0	—	3 1/2 3	3 1/2 3 Fully pd.
25000	San Pedro, c, i, Chile	2 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
10000	Silver Plume, c, i, Colorado	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
20000	Tecoma, c, i, Utah	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
20000	Thorhill Reef, c, i, Australia	10 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
4174	United Mexican, c, i, Mexico	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
14000	Utah, c, i, Utah	28 15 3	—	3 1/2 3	3 1/2 3 Fully pd.
5000	Yorke Peninsula, c, i, South Australia	5 0 0	—	3 1/2 3	3 1/2 3 Fully pd.
4000	Yorke Peninsula, c, i, South Australia	1 0 0	—	3 1/2 3	3 1/2 3 Fully pd.

Have made calls since last dividend was paid.

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

Shares.	Mines.	Paid.	Last wk. Clos. pr.	Total divs. For sh. Last pd.	Last pd.
Argentine, 1868, 6 per cent.	67 09	—	—	—	—
Brazilian, 1868, 6 per cent.	23 25	—	—	—	—
Chilian, 1868, 6 per cent.	87 89	—	—	—	—
City of Providence, 5 p.c. coupon bonds	101 103	—	—	—	—
Egyptian, 6 per cent. pref.	97 99	—	—	—	—
Do., unified debt, scrip	65 53 1/2	—	—	—	—
Do., 7 per cent. V.M.L.	31 1/2	—	—	—	—
Do., 9 per cent. guar.	79 72	—	—	—	—
Do., 7 per cent. K.M.L.	43 45	—	—	—	—
Foreign and Col. Gov. Trust, 5 p.c. et.	65 70	—	—	—	—
Do., 5 per cent. 2d issue	52 57	—	—	—	—
Do., 5 per cent. 3d issue	50 55	—	—	—	—
Do., 1873, 4th issue	45 50	—	—	—	—
Do., 1873, 5th issue	44 48	—	—	—	—
Peruvian, 1870, 6 per cent.	11 12	—	—	—	—
Do., 1872, 5 per cent.	10 10 1/2	—	—	—	—
Russian, 5 1/2 per cent. L. Mort.	—	—	—	—	—
Spanish, Quilcalver Mort., 5 p.c. et.	93 94	—	—	—	—
United States Mort., 6 per cent.	94 96	—	—	—	—

NON-DIVIDEND MINES.

Shares.	Mines.	Paid.	Last wk. Clos. pr.
40000	Aberdaunant, <i>i</i> , Llanidloes*	1 0 0	1 1/2
10000	Aberystwyth, <i>c</i> , <i>i</i> , Cardigan	5 0 0	—
80	Albion, <i>i</i> , Cornwall	100 0 0	100 100
7800	Alvig, & Buring, <i>c</i> , <i>i</i> , St. Agnes	3 0 0	3 2 1/2
18000	Ammbrose Lake, <i>c</i> , <i>c</i> , Liskeard	1 18 6	—
12000	Asheton, <i>i</i> , Carnarvonshire*	5 0 0	1 3/4 1
50000	Ballycunnisk, <i>c</i> , <i>c</i> , Schull	2 0 0	—
12000	Bellfield United, <i>c</i> , <i>c</i> , Tazewell (H. lab.)	—	3/4 3/4 3/4
28000	Beitstone, <i>c</i> , <i>c</i> , Devon	1 0 0	—
15000	Blaken United, <i>c</i> , <i>i</i> , Cardigan	1 0 0	—
3937	Bile Hills, <i>i</i> , <i>c</i> , St. Agnes	3 10 0	—
30000	Bodidris, <i>i</i> , <i>bl</i> , Denbighshire	1 0 0	1 1/2 1 1/2
1000	Bolliforge Vale, <i>c</i> , <i>i</i> , Durham	5 0 0	—
200	Botallack, <i>i</i> , <i>c</i> , St. Just	121 5 0	—
2000	Bowden Hill, <i>c</i> , <i>c</i>	1 0 0	—
6000	Bradwell Moss Rake	1 0 0	1 3/4 1
30000	Caldbek Fell, <i>i</i> , Cumberland*	2 0 0	—
50000	Cambrian, <i>c</i> , <i>c</i> , Cardiganshire	2 0 0	3 2 1/2 3
2348	Cargoll, <i>c</i> , <i>i</i> , Newlyn	619 0 0	3 2 1/2 3
10000	Caron, <i>i</i> , Cardigan*	3 0 0	2 1/2 2 1/2
10000	Central Foxdale, <i>i</i> , <i>i</i> , of Man*(21 sh.)	1 5 0	—
10000	Central Van, <i>i</i> , <i>bl</i> , Llanidloes	5 0 0	—
128	Clementina, <i>i</i> , Llanrwst	20 0 0	—
7500	Combellaek, <i>c</i> , <i>i</i> , Wendron	2 0 0	—
9000	Combarnart, <i>c</i> , North Devon	0 7 0	3/4 3/4 3/4
24000	Coart Grange, <i>c</i> , <i>i</i> , (6000 sh. 10s. pd.)	1 0 0	1 1/2 1 1/2
9000	Cow Dwyvor, <i>c</i> , <i>c</i> , Carnarvonsh.	0 18 9	—
650	Cwm Llanar, <i>c</i> , <i>i</i> , Carnarvon	2 0 0	—
3000	Cwmystwith (New) (51 shares)	4 0 0	—
512	D'Eresby Mountain, <i>i</i> , <i>bl</i> , Llanrwst	20 0 0	60 50 60
10000	Denbighshire Consolidated, <i>i</i>	2 0 0	1 1/2 3/4 1
12000	Derwent, <i>i</i> , Durham	4 0 0	2 1 1 1/2
10000	Dubby Sydon, <i>i</i> , Durham	0 12 6	3/4 3/4
6144	East Carbone, <i>c</i> , St. Cleer	2 18 6	3/4 3/4 1 1/2
4000	East Chiverton, <i>i</i> , Penzance	6 17 0	3 2 3
3000	East Craven Moor, <i>i</i> , Pateley Edge	10 0 0	10 10 10 1/2
800	East Erganian, <i>i</i> , Cardigan	2 0 0	—
1000	East Vaw, <i>c</i> , <i>i</i> , Cardigan	5 0 0	4 3/4 3 3/4
1722	East Wh. Howell, <i>i</i> , Helston	8 11 0	3 1
5000	Elgar, <i>c</i> , <i>i</i> , Llanidloes	1 0 0	1 1/2 1 1/2
30000	Fronehall, <i>i</i> , Mont.* [4000 sh. fy. pd.]	1 0 0	—
3950	Gawton, <i>c</i> , Tavistock	4 5 6	3/4 2s. 4s.
2000	Glan Clwyd, <i>i</i> , Gwyddelwern	1 0 0	—
4000	Glenny, <i>c</i> , <i>i</i> , Isle of Man	4 5 0	1 1/2 3/4 1 1/2
2000	Glyn, <i>i</i> , Llanidloes	2 0 0	3/4 3/4 3/4
2000	Goginan, & Level Newydd, Card.	2 10 0	—
40000	Gold, <i>c</i> , Carmarthenshire	1 0 0	—
9000	Goginan, <i>c</i> , Merioneth	1 0 0	—
2000	Gt. E. Foxdale, <i>i</i> , <i>i</i> , of Man (H. sh)	0 18 0	1 1/2 1 1/2 1 1/2
2000	Great Holway, <i>i</i> , Flintshire	5 0 0	5 5 5 5 1/2
9500	Great Pant-y-Pydwel, <i>i</i> , Holywell	2 0 0	—
8000	Gt. Wheel Eleanor, <i>c</i> , North Bovey	1 0 0	—
8000	Grosvenor, <i>i</i> , Holywell (21 sh.)	0 15 0	—
9000	Harehope Gill, <i>c</i> , Durham (21 sh.)	0 5 0	—
6140	Harwood, <i>c</i> , Durham	0 15 0	1 1
5000	Hush Elsteddoff Miners, <i>i</i>	2 0 0	—
200	Ialay, <i>i</i> , Scotland	28 0 0	—
2500	Killalee, <i>c</i> , Tipperary	1 0 0	—
4000	Killfirth, <i>i</i> , Chacewater	2 1 0	3/4 3/4
5000	Kingston Con., <i>c</i> , Stoke Cl'nsland.	1 0 0	—
	Ditto, preference	1 0 0	1 1/2 1 1/2
2000	Ladywell, <i>i</i> , Salop.	2 10 0	1 1/2 1 1/2 1 1/2
2000	Ditto, 10 per cent. pref., <i>i</i> , each.	0 10 0	3/4 3/4 3/4
2500	Levant, <i>c</i> , St. Just	9 18 6	—
5000	Llanfihadr, <i>i</i> , Montgomery*	2 0 0	—
5000	Livingstone Consols, <i>c</i> , St. Agnes	0 10 0	1 3/4 1
9000	Llanrwst, <i>i</i> , Carnarvon	2 0 0	4 1/2
5000	Llwyn Teify, <i>c</i> , <i>i</i> , Cardigan	1 0 0	—
40000	Medlyn Moor, <i>i</i> , Wendron	1 17 4	—
6000	Mellnary Con, Hayle	2 0 0	2 1/2 2 1/2 2 1/2
1000	Melyndw, <i>i</i> , Cardigan	3 0 0	3 3/4 3/4
1000	Monydd Gorrdu, <i>i</i> , Cardigan (Red.)	5 0 0	—
5000	Nant-y-Ronen, <i>c</i> , <i>i</i> , Cardigan*	1 0 0	—
5000	Naseant Copper*	1 0 0	—
4528	New Bronfloyd, <i>c</i> , Cardigan (51 sh.)	3 10 0	2 2 1/2
5000	New Consols, <i>c</i> , <i>i</i> (in liquidation)	—	—
8000	New Dolcoath, <i>c</i> , <i>c</i> , Camborne	3 0 0	1 1/2 1 1/2 1 1/2
5000	New East Foxdale, <i>c</i> , <i>i</i> , Isle of Man.	0 15 0	—
5000	New Powey Consols, <i>c</i> , St. Blazey*	3 0 0	2 1 1/2 2
492	New Hendra, <i>c</i> , Breage	3 9 0	—
3200	New South Merilyn, <i>i</i> , Flint*	5 0 0	1 3/4 1
5000	New Tincroft, <i>c</i> , Llant.	6 0 0	3 2 1/2 3
5000	New Wheel Emma, <i>c</i> , Buckland	2 0 0	—
5000	North Cornwall, <i>i</i> , Cornwall	5 0 0	5 1/2 5 1/2 5 1/2
5000	North Laxey, <i>c</i> , Isle of Man	2 0 0	3/4 6s. 6s.
5000	North Levant, <i>c</i> , St. Just	12 8 0	—
5000	North Prince Patrick, <i>c</i> , <i>i</i> , Holywell.	1 0 0	3 1
938	North Trekerby, <i>c</i> , St. Agnes	4 7 10	—
5000	North Wheel Towan, <i>c</i> , <i>i</i> , Illogan	1 19 6	—
400	Osia Hills, <i>c</i> , <i>i</i> , Limerick	5 0 0	—
5000	Pandora, <i>i</i> , Carnarvon	2 0 0	1 3/4 1
5000	Panty Mwyn, <i>i</i> , Mold (8794 iss.)	2 0 0	—
823	Parys Mountain, <i>c</i> , Anglesea	3 0 0	3/4 3/4 3/4
5000	Pateley Bridge, <i>i</i> , Yorkshire	5 0 0	3 3/4 3 3/4 3 3/4
5000	Plynlleimon, <i>i</i> , Llanidloes*	2 0 0	6s. 4s. 6s.
648	Polroze, <i>c</i> , Breage	21 0 0	—
200	Port Nigel, <i>c</i> , <i>i</i> , Carnarvonshire	2 0 0	3/4 3/4 3/4
5000	Prideaux Wood, <i>i</i> , Llanvory	5 0 0	—
182	Prince of Wales, <i>c</i> , Calstock	2 4 0	4s. 3/4 3/4
5000	Relistian Consols, <i>c</i> , Gwnear	0 10 0	3/4 3/4 3/4
5000	Rookhope, <i>i</i> , Durham*	1 10 0	1 1/2 3/4 1
5000	Silvercross, <i>c</i> , <i>c</i> , Marazion	1 0 0	—
200	Snowbrook, <i>c</i> , <i>i</i> , Montgomery	5 0 0	—
5000	So. Cwmystwith, <i>i</i> , Cardiganshire	2 0 0	4 3 1/2 4
5000	South Darren, <i>i</i> , Cardigan	1 10 0	1 1/2 1 1/2 1 1/2
612	South Dolcoath, <i>c</i> , <i>i</i> , Redruth	12 5 0	1 1/2 1 1/2 1 1/2
5000	So. Molton Cons., <i>c</i> , <i>i</i> , No. Devon	0 20 0	1 3/4 1
5000	South Roman Gravel, <i>i</i>	1 10 0	3/4 3/4 3/4
5000	South Roseau, <i>c</i> , <i>c</i> , Camborne	6 10 0	5 4 5
5000	South Tolecarne, <i>c</i> , <i>c</i> , Camborne	2 11 6	3/4 3/4 3/4
937	South Wheel Crofts, <i>c</i> , Illogan	39 10 0	10 10 10 12
5000	St. Lawrence, <i>c</i> , <i>i</i> , Illogan	7 12 4	3 1/2 2 1/2 3
5000	St. Lawrence, <i>c</i> , <i>i</i> , Flintshire	2 0 0	—
5000	St. Patrick, <i>i</i> , Halkin, Holywell	1 0 0	1 1/2 1 1/2
5000	Success, <i>c</i> , <i>c</i> , <i>i</i> , Derb. (12,000l. called)	1 0 0	—
5000	Sunnyside, <i>c</i> , <i>i</i> , Durham	2 0 0	2 1/2 2 1/2 2 1/2
5000	Talybot, <i>c</i> , <i>i</i> , Cardiganshire	1 0 0	1 1/2 1 1/2 1 1/2
400	Teesdale, <i>c</i> , Durham	1 0 0	3/4 3/4 3/4
5000	Teign Valley, <i>i</i> , <i>dar</i> , Bridford	1 0 0	—
5000	Temple, <i>i</i> , Cardigan	1 0 0	2 1/2 2 1/2 2 1/2
5000	Tolgus Consols, <i>c</i> , Redruth	5 0 0	5 1/2 5 1/2 5 1/2
5000	Trevel Consols, <i>c</i> , <i>i</i> , St. Ives	0 9 6	3/4 3/4 3/4
5000	Treveligh Wood, <i>i</i> , Redruth	6 10 0	—
5000	Trethellan, <i>c</i> , <i>i</i> , Crantock	5 0 0	—
540	Truro, <i>c</i> , <i>i</i> , Nerpuki, Flintshire	10 0 0	2 1 1 1/2
5000	Tyn-y-Fron, <i>c</i> , <i>i</i> , Cardigan	1 0 0	1 1/2 1 1/2 2
5000	Van Consols, <i>i</i> , Llanidloes*	2 10 0	3/4 3/4 3/4
5000	Vaughan, <i>i</i> , <i>i</i> , Cardiganshire	10 0 0	—
5000	West Asheton, <i>i</i> , Carnarvon	1 0 0	1 3/4 1
5000	West Bassett, <i>c</i> , <i>i</i> , Illogan	6 6 8	2 1/2 2 1/2 2 1/2
5000	West Combarnart, <i>c</i> , <i>i</i> , North Devon	1 1 6	3 3/4 3 3/4
5000	Ditto	0 2 6	3 3/4 3 3/4
5000	W Craven Moor, <i>i</i> , Pateley Bridge*	10 0 0	10 9 10
5000	West Godolphin, <i>c</i> , <i>c</i> , Breage	2 10 0	2 1 1 1/2
5000	West Goginan, <i>c</i> , Cardiganshire	3 0 0	3/4 3/4 3/4
5000	West Llangyfog, <i>c</i> , <i>i</i> , Montgomery	2 0 0	—
5000	West Mary Ann, <i>i</i> , Menheniot	0 3 6	1 3/4 1
5000	West Milw, <i>c</i> , <i>i</i> , Flint	1 0 0	—
5000	West of England Granite Company	2 0 0	2 2 2
5000	West Pateley Bridge, <i>i</i> , Yorkshire	1 0 0	2 1/2 2 1/2
5000	West Roseau, <i>c</i> , <i>i</i> , <i>c</i> , Camborne	3 0 0	1 1/2 1 1/2 1 1/2
5000	West Tankerville, <i>c</i> , <i>i</i> , Salop	2 0 0	1 3/4 1
5000	Ditto, 15 per cent. pref.	3 0 0	2 1 1 1/2
5000	West Wheel Pevor, <i>c</i> , Redruth	0 10 0	—
5000	West Wheel Seton, <i>c</i> , Camborne	47 0 0	10 6 8
5000	Wheel Agar, <i>c</i> , Illogan	12 0 0	4 1/2 4 1/2 4 1/2
512	Wheel Bassett, <i>c</i> , Illogan	24 2 6	12 10 12
5000	Wheel Comfort, <i>c</i> , St. Agnes	2 0 0	—
535	Wheel Comfort, <i>c</i> , Gwennap	1 5 0	—
5000	Wheel Gwennap, <i>c</i> , Tavistock	1 5 0	—
479	Wheel Grenville, <i>c</i> , Camborne	4 1 0	1 3/4 1
5000	Wh. Mary Hutchings, <i>c</i> , <i>i</i> , Plympton	3 6 0	3 1/2 2 1/2 3
5000	Wheel Pevor, <i>c</i> , Redruth	7 11 0	—
5000	Wheel Russell, <i>c</i> , Tavistock	2 1 0	3/4 3/4 3/4
96	White Ury, <i>c</i> , <i>i</i> , Redruth	13 5 6	1 1/2 1 1/2
96	White Cliff, <i>i</i> , Llanrwst	5 0 0	—